The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 85, No. 7 CHICAGO, ILLINOIS AUGUST 15, 1925

THE PRESCHOOL CHILD

WITH ESPECIAL REFERENCE TO ITS EMOTIONAL LIFE AND HABIT PROBLEMS *

E. J. HUENEKENS, M.D.
MINNEAPOLIS

The ideas and conclusions expressed in this paper have been reached as the result of five years' experience in a clinic dealing only with the child of preschool age. The results of this experience have been to convince me that the emotional side of the child at this age, which marks the transition from the dependence of infancy to the quasi-independence of preschool life, is of more importance than the purely physical. Neurotic habits among children and adults have definitely increased in the last decade, probably as a result of a variety of causes. Among these causes, factors that especially affect the emotional life of the child, may be the increasing number of only children and the confining and repressing influence of apartment and hotel life, with the consequence of adult companionship for the child and lack of normal outdoor play. Added to these is the general, only partly postwar, restlessness which seems a part of the so-called automobile and jazz age. The desire of parents to retain all the pleasures and excitement of youth has resulted in forcing on their children the pleasures and excitement of adult life. These conditions are world wide but seem to be especially true of this country. Finkelstein, on his recent visit to the United States, marveled at the number of functional nervous disorders which he found here by comparison with those experienced in his German clinic.

Emotional disturbances, including such habits as tantrums, night terrors, enuresis, speech defects and finger nail biting may be due to some purely physical disturbance, but may more often be laid at the door of improper training and poor environment. It is interesting to observe that comparatively few parents recognize this fact, for by far the chief complaints brought before the clinic were "poor appetite," "underweight," "adenoids and bad tonsils," while only a small number called attention to any of the nervous disorders mentioned above. It was generally brought out that the poor appetite was only one of a series of faulty habits, rather than a physical defect, but it was regarded by most parents as due to some organic lesion or a disturbance to be simply rectified with a prescription of some tonic or medicine. In analyzing these habits we find that, aside from any existing physical defects, the chief fault lies in the child's environment, which in this age of preschool life is created almost entirely by the parents. Ignorance of, or lack of comprehension of the first elements of child psychology, combined with a lack of firmness, occur over and over again as the chief determining factor. Less often, we find overattention, lack of agreement between father and mother, emotional strain on the part of the parents, and a too rigid discipline. In the general environmental influences outside of the parents, lack of playmates and overzealous grandmothers and other adult relatives play no mean rôle.

The habit problems are important from two distinct standpoints. First, from their effect on the physical life of the child; second, from effects discovered later, on the emotional, mental and social life of the school child and adult. There are two outstanding bad habits that have a distinctly bad effect on the body. These are poor appetite and poor sleeping habits. The treatment of sleep disorders (such as insufficient sleep, night terrors and restless sleep) is comparatively easy. With proper handling, every child should sleep eleven or twelve hours at night. The daily nap is perhaps more difficult; but even when actual sleep during the day cannot be achieved, one or more rest periods can easily be accomplished.

As every pediatrician knows, poor appetite is the chief presenting symptom given by mothers. Largely unknown to our mothers and grandmothers is the despairing cry, "How shall I get my child to eat?" Poor appetite leaves in its wake underweight, anemia and the indefinite disorders that go with a lack of vitamins. I do not put the great stress on weight that many authorities do. The height and weight tables for children of preschool age leave much to be desired, and I agree with Julius Bauer and Lederer [1] that constitution plays a great part in the nutrition of children. Many children, in spite of well balanced and calorically sufficient diets, remain under average weight, and others with different endocrine systems gain readily on relatively small amounts of food.

It cannot be overemphasized that children fail to receive proper quantity and properly balanced diets, not because the parent is ignorant of the value of vitamins and foods, but because the child refuses to eat them when placed before him. What is needed is not dietetic experts to give long lists of important foodstuffs, but workers with sufficient training in child psychology to advise as to methods by which children can be induced to eat.

Perhaps physician and dietitian have laid too great stress on what a child should eat and have *more or less* ignored other bad habits, while psychologists and ychiatrists have merely lumped poor eating and sleep-g habits with other nervous disturbances, and have iled to place sufficient emphasis on their dual rôle both physical and emotional aspects of the child life. n the other hand, the later effects of faulty habits the emotional, mental and social life of the older ild and adult have to some extent escaped the tention of physicians other than psychiatrists.

---

* Chairman's address, read before the Section on Diseases of Children, at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Konstitutions Pathologie, Kinderheilkunde, Berlin, Julius Springer, 1924.

In the work of various mental hygiene clinics about e country, one is struck by the large number of so-called elinquencies that could have been prevented if the rents during the preschool age could have had adeuate instructions in the understanding and training f their children. This is especially well brought out the case histories of Healy,[2] in which he shows that ractically every case, if handled properly at an early ge, would have avoided the often insoluble difficulties rising later. As in the general public health work, revention is easier and more effective than cure. The ational Committee for Mental Hygiene could well lan to complement its present child guidance clinics y preventive work with preschool children and a eneral program of education of parents in child sychology.

The treatment of these nervous disorders is not an asy, cut-and-dried affair. Certain fundamentals must e stressed in all these cases. One of the difficulties es in the fact that a great part of the treatment has be directed toward the parents. Both father and other must be instructed in the ground work of child nderstanding. This is best accomplished by putting their hands simple books on child psychology, books ot written for the student, but directed especially to e parents. Cameron's "The Nervous Child,"[3] and eery's "The Newer Method in Child Training"[4] published in six small pamphlets), have seemed to e best suited to the needs of the beginner; in addion a small pamphlet, called "Your Child" and gotten ut by the Minneapolis Infant Welfare Society, gives n excellent summary of the information every father nd mother should have before he starts on the ork of training a child. "Safeguarding Children's erves,"[5] by Walsh and Foote, and "The New sychology and the Parent,"[6] by Crichton Miller, and any other similar books have been found of value in iven cases. These books all give simple, direct, comon sense advice, clarified by specific cases, and they an be read with profit by all parents, whether or not hey have a problem on their hands.

Another fundamental part of the treatment which nust be assured in every case is the provision of playnates of approximately the same age as the patient. Economic or social conditions which are causing an ncrease in apartment and hotel dwellers militate against his. I know nothing more pitiful than the frequently recocious children brought up in the adult atmosphere f the typical family hotel. Added to this is the frequently warped perspective of the modern parent (often unconsciously fostered by the physician) which eeps children from adequate companionship because f the possible danger of acquiring infectious diseases. A similar and equally harmful parent is he who is fraid his child will pick up undesirable language and habits from the "awful children next door or across the street."

As a final fundamental, the value of a recent and fast spreading institution, the nursery school and private kindergarten, cannot be overrated. The group discipline in these newer schools makes the instilling of normal eating, sleeping and the other essential good habits a comparatively easy matter. These lessons are almost unconsciously and without effort absorbed by the child. The absence from the smothering adult atmosphere of the home, if only for a few hours, is no small part of the value of these schools, to say nothing of the widened perspective and the absorbing new interests opened for the child. Children as young as two years have been placed in such schools, and remarkable benefit resulted as a consequence of the removal from the pedestal of home adulation to the common ground where equals meet.

These fundamentals of treatment can be applied with benefit to any child of preschool age whether or not it presents a problem. We must now proceed to apply advice particularly suited to given cases. Before doing this we must classify our children, by means of a careful history and personal observation, into either the timid, shrinking, invert type or the egocentric domineering type. If in the former class the child must be encouraged and praised even beyond his just deserts; punishment must be very carefully given, if at all, and the child's initiative must be encouraged and its fears calmed. If the child is of the egocentric type, firmness in controlling exuberant tendencies, and punishment applied judiciously and not in anger, are called for. In other words, the methods adopted must be suited to the particular child. It is probable that the old fashioned Prussian type of military discipline in the family, in which the father's slightest wish was law and the children obeyed entirely through fear, did a great amount of harm to the timid child. Contrariwise, modern psychologic tendencies in the substitution of the rule of reason for the rule of fear have swung too far in the opposite direction. Methods ideally adapted to the control of children in groups, such as a kindergarten, and perfect in operation when applied by trained experts, may be inadequate and even do positive harm when employed in the control of a single child or several children in a home, and applied by parents weak willed and often impatient, lacking in judgment and inadequately trained.

Spaulding,[7] in describing a case of tantrums, stresses this point. "The child had never been expected to shake hands with strangers, because since she did not seem interested it was felt it would be wrong to force her. In this case the mother had heard a little of psychoanalysis and was trying to carry out some of its principles. Freud and the analysts have probably never been more misunderstood than in this point. It is true, of course, that much weight is given to the danger of repression, especially of an unconscious nature, and it is obvious that much energy and initiative can be discouraged through the repressive type of stern New England training. But if psychoanalysis stands for one thing it is for the socialization of the ego, for bringing the individual from infantile and self centered levels to adult and altruistic ones. One of the important methods of attaining such development is through the facing of social situations rather than through escape from such obligations, and the tantrum is one of the most obvious means of escape that we know."

---

[2] Judge Baker Foundation Case Studies.

[3] Cameron, H. C.: The Nervous Child, Oxford Medical Publications.

[4] Beery, R. C.: The New Methods in Child Training, Parents Association, Pleasant Hill, Ohio.

[5] Walsh, J. J., and Foote, J. A.: Safeguarding Children's Nerves, Philadelphia, J. B. Lippincott Company, 1924.

[6] Miller, H. C.: The New Psychology and the Parent, New York, Thomas Seltzer, Inc., 1924.

[7] Spaulding, E. R.: Tantrums in Childhood and Related Emotional Reactions, Arch. Pediat. **41**: 191 (March) 1924.

Walsh and Foote,[5] in a chapter on "Discipline and the Nervous Child," say: "A sentimental psychology of our time proclaims that the child should never be punished. If the habit of obedience is not established in early childhood it is doubtful whether it will be established later without the exercise of rather severe harshness. As a rule the habit of obedience can be established without resort to harshness, although not without punishment." It has been our experience that there is a far larger number of children who suffer from too lax discipline in the home than of those who suffer from unconscious repressions and hidden fears due to harsh discipline.

Bearing in mind the considerations of child psychology mentioned above and deciding on the type of child with which we are dealing, we must now advise the parents (always, if at all possible, both mother and father) as to the best methods of handling the child. If, as often happens, there is a lack of cooperation between parents, we must iron out the differences between them. Such difference is well represented by the frequently overindulgent mother and the compensatingly too stern father or vice versa. The parents must be made to see this situation frankly, and the fullest cooperation of both is absolutely essential. Even given their best efforts, repeated encouragement and much patient detail advice over long periods of time is necessary before success crowns our efforts.

This is especially true of the eating problem, one of the most difficult with which we have to deal. The advice usually given is not to urge the child to eat but merely to place food before him and ignore him during the meal, repeating this for several days until the absence of dramatic efforts to make him eat brings about the cure. This method should always be given a trial and is especially effective with the negativistic type of child. When this fails, because of a different type of child or because the parents are incapable of carrying out this plan, other methods must be used. The following suggestions, quoted from the pamphlet, "Your Child," have been found helpful and practical:

(*a*) Guidance: Help the child to get acquainted with new foods and to accept new flavors. Give only a small amount of food the first time, gradually increasing. In some cases combining a new food with one the child already likes is helpful. Do not call attention to the fact that the food is new or the possibility that the child may not like it.

(*b*) Imitation: Older members of the family should be enthusiastic about foods and eat what is set before them. A child will immitate them. Younger children will follow the older ones. In the case of an only child, a "party" helps him eat. Many families get together only at meal time, and therefore meal time should be a happy time.

(*c*) Praise: Praise the child when he eats well. Be proud of him and let him know it. Do not emphasize his failures.

(*d*) Patience and firmness: Show the child that you expect him to eat his food. Set it before him and make him sit at the table until he eats it all, no matter how long it takes. Start with small amounts of suitable foods and give him as much time as necessary to eat. He will soon learn to eat the amount he really needs. Never allow his refusal of food to make you angry. Perhaps he does not eat because he enjoys seeing you become irritated.

(*e*) Deprivation: Deprive a child of dessert or some food of which he is very fond if he does not eat the rest of his meal. Be firm but not cross. If you decide to do a thing do not change your mind, no matter how much the child teases. (Children soon discover that it is possible to make you change your mind.)

(*f*) Force: Force is necessary for children who spit out their food or those who vomit at will. Give such a child a small amount of the food, if he vomits give him more; continue until he keeps the food down. When he learns that you know his trick, he will stop. Begin this method when the baby takes his first spoonful of cereal.

(*g*) Illustration: Show pictures and tell stories of children who eat well. A scrap-book made up of pictures of the foods to be eaten and of children eating happily may be used to interest a child. Gummed stars may be pasted into the book whenever he eats certain foods. Be enthusiastic over the book and the child's progress. Get an outsider, his teacher if possible, interested in the book.

(*h*) Relaxation: Often a child does not eat because he is excited from play. A half hour of rest before meal time is a great help in such cases.

When the child is too stubborn to yield to any of the foregoing suggestions or the parent has become too nervous to carry them out, a complete change of surroundings will often effect the cure. Living for a few weeks entirely away from the parents' influence in a hospital or home where there are normal children will frequently induce in the patient normal habits of life.

However, in spite of patient effort and close study of each individual case, we must confess to many failures in all different types of cases. In analyzing these, we find that they can be ascribed largely to three causes. These are indifferent cooperation on the part of the parents; actual inability of some parents to carry out directions even though they are willing and anxious to do so, and finally insurmountable obstacles in the child's environment. The first cause brings out at once the thankless quality of our task. The part that the parents play in the causation of the emotional disturbance must be plainly explained, even though this is frequently impossible without antagonizing them. Many parents are unable to consider suggestions of errors on their part as anything but harsh criticism, and some mothers are sure that any such criticism is a personal insult. When this antagonistic attitude does not yield to tactful handling, our best efforts are doomed to failure. Among the parents who, with the best will in the world, are not able to carry out the directions we have two general classes: one is simply too ignorant to comprehend what the instructions mean; the other, and here we frequently find the best educated and most intelligent parents, is unable to follow directions because of what may be called temperament or lack of self control. As regards obstacles in the child's environment, financial and sentimental reasons not infrequently prevent moving from apartments to neighborhoods with desirable playmates and make it impossible to maintain separate homes for doting grandmothers or other adult boarders.

CONCLUSION

I wish to emphasize that this work, if it is done at all, must be done by the pediatrician and other general practitioners. In the general routine of the physical care of the infant and child, it is a simple matter to instruct the parents gradually in the elementary lessons of child psychology. These lessons should and can be begun when the infant is only a few days old and must be carried on throughout the child's life by the family medical adviser, whether he is a pediatrician or a general practitioner. His is the important fundamental task. He has the more intimate knowledge of the home life of the child, and if he will equip himself for this new type of service, he will be able to take care of the great mass of comparatively simple cases and prevent a large part of those which become so complex and difficult that a psychiatrist must be called in.

This paper will have served its purpose if it prevents the statement frequently heard, "There is nothing wrong with your child, madam, except that it is a little nervous." "A little nervous" covers a multitude of sins which should be apparent to the discerning physician.

In concluding, I can do no better than to quote from a recent book by Gesell:[8]

> The pediatrician holds a most strategic position both in the field of public health and of private practice. Historically, the major duties of the pediatrician have been to recognize and combat disease; but the whole tendency of current pediatrics places a coordinate emphasis upon prevention and supervision. The supervision of nutrition in infancy is in many respects the central problem of pediatrics. This problem is so fundamental that it includes not only definitely sick children but the near sick and the normal. This problem is also so fundamental that by implication and often by actual exigencies it includes the psychological and functional aspects of development. The protection of the nutritional health of the child becomes the natural basis for a broader and equally continuous type of developmental supervision.

538 La Salle Building.

THREE GREAT NATIONAL HEALTH PROBLEMS *

OSCAR DOWLING, M.D.
SHREVEPORT, LA.

The problems that I discuss are three of the most important that confront public health officers today. There is no implication that these three are the only ones, but in my opinion they are among the greatest. Nor are they new, though I should say that their solution or at least partial solution is imperative, and I think it will be admitted that a coordinated effort would do much to solve them.

Concentration on a single objective is acknowledged to be the best method of attaining an end; dissipation of effort leads inevitably to lost motion and defeats success. Therefore the selection of three problems from among a great number simplifies matters; an attempt to consider more of them at a time would lead to confusion.

I have chosen the problems of drug addiction, rabies and the venereal diseases. And while I might have taken tuberculosis in place of rabies, I feel that the efforts for the control of this disease are so well under way, after years of working at cross purposes, that it does not so persistently urge itself on public notice as it did formerly. Then, too, while rabies may not claim many human victims, at least when compared to the devastation wrought by either tuberculosis or even typhoid, there is an ever present danger of a horrible death which is a constant menace.

All three of these public health problems have one common factor in that each is preventable. Whether it be the misery, wretchedness and moral dissolution of the addict, the inevitable fate of an untreated rabies case or the innocent or "guilty" results of a venereal infection, the public and the health officials are conjointly to blame. The public, because of indifference and opposition, active or passive, to the enforcement of laws and regulations, is often more deserving of censure than the health officer, who, according to his oath, should safeguard the public interests, and who is generally willing to do his duty. Naturally, this is due to the ignorance and to the inability to appreciate the value of the health official's efforts, and of course the latter is always to blame when the preventable evil occurs, even though it is often physically impossible to succeed in the face of heavy odds. However, it is not possible to stand still. I think we must make the best of things and try to improve the situation whenever we can.

DRUG ADDICTION

I do not think that any one person can visualize the narcotic problem in its true dimensions. Carleton Simon, Sceleth, Kolb and Du Mez have made estimates either in their respective states or for the country as a whole. The original survey yielded variable results; anywhere from 80,000 to 4,000,000 was the number of addicts believed to be running loose in the United States when the congressional committee made its report in 1919. The facts are still obscure and the statistics probably far from the true status of affairs. If I were to judge from my own experience, something in the neighborhood of a million would be the conclusion, but it would be hardly more than a guess, and then too decidedly biased by conditions in Louisiana. Addicts, of course, migrate to those points where the ease of obtaining their favorite drug or the cheapness of the drug attracts them.

Though the figures quoted from the congressional report may be ancient history, have we any reason to believe that the situation has materially improved during the last six years? I think not, if we can trust our own eyes and the experience of the federal officers and physicians in certain cities of the United States. Often, and especially during the era of "ambulatory treatment" in the narcotic clinics, I felt strongly inclined to doubt the wisdom of the Harrison act, which represents, as often happens with law making bodies, an attempt to cure a deep rooted evil with one stroke of the pen. Evidently the situation was misunderstood, or certainly some emergency measures could have been adopted or planned in advance to take care of the multitudes of unfortunates cut off from their drug supply. If only a portion of the maudlin sympathy wasted on useless animals could have been applied in a practical manner, a world of suffering could have been avoided. The explanation may be sought in that the men who were called to solve the problem were misinformed or at least inexperienced and short sighted.

Whatever the case may be, the Harrison act has not accomplished its objective. If reports be given any credit whatever, it would seem that the number of addicts has not been materially decreased, but an enormous impetus has been given to the illicit drug traffic touts. We hear frequent rumors of school children being led astray by these wolves in sheep's clothing. We are told that the United States consumes more opium and its derivatives than all the countries of Europe and seventeen times as much per capita as the Chinese. We are also informed that drug rings exist which are almost unbreakable because it is impossible to implicate the "man higher up"; the lesser fry are caught in the legal net, but of what advantage is this when the guiding spirits remain at large? It is therefore clear that the smuggling of drugs must be the largest factor in drug addiction today. At least it is the one source of supply from which the addict can receive his daily drug without involving the doctor, who is another possible intermediary.

---

[8] Gesell, Arnold: The Mental Growth of the Preschool Child, New York, the Macmillan Company, 1925.

* Chairman's address, read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

It is folly to make the bald statement that even a majority of drug addicts are low grade morons or persons with criminal tendencies, though it is quite true that when a normal person converted into an addict is deprived of his drug, he will stop at nothing to obtain it. As Dr. Bundesen says in the *Weekly Bulletin*, published in December, 1923, "It is safe to say that every addict is a potential criminal if driven to the point where crime is necessary to obtain the dope." On the other hand, there is no doubt that a very large percentage of criminals are addicts, victims of heroin, morphin or cocain, and for this reason there is a very general tendency to regard all drug victims as belonging in the same category. And as for psychoneurosis, which many able men have considered the mental foundation for drug addiction—point to the normal person among you. The following anecdote may be apropos to illustrate the point: A well known professor of physiology, quite recently deceased, was once asked on the witness stand how many persons could be considered normal individuals. "Probably 20 per cent.," he replied. "Then you mean to imply, Doctor," the attorney said, "that 80 per cent. of us are mentally abnormal in some way?" "Yes, I do," the savant answered. "If that be the case, to which contingent do you belong?" the lawyer countered. "To the 80 per cent., and in it are also included the geniuses and great men of the world." He might have added that the criminal element of all the nations of the world are recruited from this class, too.

This digression, if it serves no other purpose, illustrates the difficulty of deciding offhand the factor of mental instability in drug addiction. Doubtless there are thousands of addicts, who, had they been tested by competent psychologists before acquiring the habit, would have registered at, or very near, par. It is sufficient to assume that some peculiar defect in the physiologic make-up which we call, for want of a better term, idiosyncrasy may be fundamentally responsible.

Whatever be the reason for contracting an addiction, the fact remains that the victims are very unfortunate individuals. They are sick persons in the same sense that any one burdened with a demoralizing habit is sick. They deserve the opportunity for treatment that is afforded other persons physically or mentally handicapped. Furthermore, addiction calls for different measures than other physical or mental disabilities. It is peculiar in that the cause of the disease condition has become a vital necessity to the life and happiness of the afflicted person, and the only way of treating him is by absolutely preventing his obtaining the drug. And what places are there where poverty stricken addicts may obtain a cure? Nowhere except the jails and the penitentiaries. The hospitals will not accept them, so there is nothing for them to do but to commit a crime in order to obtain treatment. When they are turned out there is every chance of reverting to the habit as soon as they meet a psychic obstacle or suffer a mental defeat. Here is where the paths of law and medicine cross and conflict.

As lawyers look at the matter, the enforcement of the Harrison act is the paramount issue. According to their ideas, the law was framed primarily for the protection of society against the criminally inclined, whose slavery to narcotics made them dangerous members. In short, the Harrison Narcotic Law penalizes all addicts as criminals and degenerates; it does not even attempt to separate the wheat from the chaff. In theory, the law makes it impossible for addicts to get their supply of drugs. It does not distinguish between the criminal and the noncriminal. It is oblivious to human suffering; it sees the mass, but not the individual—the forest, but not the trees.

On the other hand, the physician receives the human wreckage from the legal battle to repair and make whole again, if he can. His motives are humane, and society exacts this trait. He cannot understand, as a laywer apparently can, that a law devoid of the elements of humanity can be framed. He, in contradistinction, is interested in the individual more than in the mass. He sees the trees, but not the forest.

Heretofore we have been wandering around like a cow tied to a stake, and we get nowhere. We know partly from observation and partly from statistics that the narcotic problem is a big one. We are aware that drug pedlers, those henchmen of drug ring directors, are responsible for the distribution. That there is a continuous supply of drugs entering the country over the borders and through the coastal ports, we have not the faintest doubt. Then we have plenty of evidence that unscrupulous physicians are prescribing narcotics in amounts far in excess of the legal allowance under the pretense of an incurable disease. In fact, there is considerable difficulty in defining an incurable disease that will harmonize with the interpretation of the Harrison act. Finally, when all is said and done we stand face to face with the producers of opium in oriental countries who, judging from the recent controversy, are bending every effort to maintain the collection and export of their nefarious products. Probably the control of addiction is inevitably doomed to failure unless some method of circumventing this form of national selfishness is discovered.

Even were it possible to enforce the import, manufacture and distributing clauses of the Harrison act and other federal acts pertaining to the import of narcotic drugs, there would still remain the addict. The addict himself falls particularly within the province of the medical man. In short, we might say that the ultimate solution of the addict problem is a medical one. It is obviously the duty of the medical profession to devise means to meet the emergency. Consider that the addict of whatever standing becomes a liability, the greater because he suffers from a condition which implies the elementary impulse to the most violent acts. Add to these the sufferers from incurable diseases who have become addicted to drugs because of the diseases, but for whom the narcotic is not essential in the average case to relieve distress, and the sociological and medical aspects become at once apparent. All must be cared for sooner or later, whether they land in jail or in the hospital. At present the individual physician must determine the condition of the patient and assume the responsibility of prescribing or of refusing to prescribe, or the sufferer becomes the slave of the drug pedler.

But all this does not alter the status of the suffering addict. He cares nothing about the distinctions of the law, or the conscience of the physician. He is an accomplished fact. He is here and asks what you are going to do about it. He says: "If you don't help me, I shall suffer torments, and I shall make it increasingly unpleasant for the society which has bred me. I am both the victim of my appetite and the bond servant of the drug pedler. You will not assist me, and you apparently are impotent to suppress him. You may arrest and punish me, but what good will it do you in the long run? Arrest and punishment never have cured a social evil. Besides, you will breed one more implacable enemy to be added to the hundreds of thousands who are already endeavoring to undermine our social and governmental order.

"I'll tell you, help us out of this slough of perdition to become members of that society which shuns us now, by providing institutions where we can get treatment and rehabilitation. Pursue a relentless war on the drug pedler, drug smuggler and above all on the brains of the dope ring. Cut down the importation of narcotics and curtail the manufacture of the pure drugs. Exact treaties and agreements with foreign countries which will aim to suppress the importation of their drugs, crude or otherwise. And though it cost you millions in money, it will not only be doing justice, but it will represent sound business, because it will eventually repay you richly when the final reckoning comes." That is what the drug addict says to us, the medical profession, who know more about him than the law maker ever can expect to know.

RABIES

The second problem which I have chosen to regard as a national problem is rabies. It is true that there were few deaths from this disease reported; there were fifty-eight in 1919; forty-one in 1920; fifty-seven in 1921, and forty-six in 1922, which are the latest statistical returns from the United States Bureau for the Registration Area, though doubtless there were deaths in areas outside this territory which were not reported. But the malady is so terrible and the thought alone strikes the human mind with such dismay that these few fatalities represent infinitely more potential suffering to possible victims than many times the number of deaths from another disease. From 1909 to 1921 there were 806 deaths. It is not known how many were prevented, but the statement that 22,000 persons applied for the Pasteur treatment in 1923 indicates at once that the danger is very great.

England, as is well known, has dealt effectively with rabies, in fact, succeeded in suppressing the disease entirely until about 1918, when a dog smuggled into the country again introduced it. From all accounts drastic measures were again applied, with the result that since 1921 rabies has once more been absent from England and Wales. It has recently been declared that special arrangements for antirabic treatment are no longer necessary in those countries.

Now, it is true that the British Isles are of relatively small extent in comparison with the United States, but the population is very dense and the canine population probably far greater in proportion than it is in our own country. England eradicated rabies by enforcing quarantine and other drastic regulations, even before the prophylactic treatment of the dogs themselves had been thought of. Why is it not now possible with this additional method of protection to remove this ever present danger? I at least believe that it is.

Rabies is very widely disseminated throughout the animal kingdom. It is asserted that every mammalian animal is susceptible and that herds even may be inoculated. However, it is most common among dogs, foxes, wolves and hyenas in the wild state. Cattle and sheep as well as swine are frequently infected, though it is less common in horses. Cats occasionally contract rabies, though this rarely occurs in comparison with the incidence among dogs. Rabies may sometimes destroy whole herds of cattle.

The dog is the usual carrier of rabies. Being a highly domesticated animal, it lives in close contact with man, and its master lets it do just about what it pleases. Our cities enact muzzling ordinances which are never enforced. No one is compelled to keep dogs tied up, during either the day or night. The consequence is that they roam at large and are inoculated by stray dogs. There is a dog catching system and a pound in every large city, but usually when the wagon gets around the dogs have disappeared. Even as it is, there is more work to do than any dog catcher could attend to.

Pet animals are for the most part immediately responsible for injuries, though of course the pariah dog is the vector. When it is recalled that a dog infected with rabies may wander for many miles, as high as 25 or 30, it is said, snapping and biting at every animal that comes in its way, it is clear that the danger to human beings can become tremendously real. We often observe instances in which four and five and sometimes more persons are injured by a rabid animal and are compelled to subject themselves to the Pasteur treatment. The fact that the patient may now have the treatment administered by the local physician instead of undergoing the annoyance and expense of a journey to some hospital does not mitigate the unpleasantness of the injections or the suspense which every potential victim of rabies must undergo.

One of the reasons that children are so frequently bitten is partly the tendency of the child to fondle pets and partly the mistaken idea of adults that a dog, to be rabid, must rush around foaming at the mouth. A great many cases of rabies in cattle and dogs do not show the stage of furious excitement, but may pass almost directly into the paralytic phase after the premonitory symptoms have developed. When the stage of excitement is absent or not marked, the disease is known as dumb rabies, and there is less tendency shown by the animal to snap and bite. Regardless of the form, rabies eventually terminates in paralysis and death.

It is a mistake to believe that rabies occurs only during the hot months of the year. It has been statistically shown that rabies may appear during the winter as well as during the summer. The fact that more cases occur between April and September than between October and March is due to the circumstance that dogs move about more freely during the former than during the latter period; the temperature does not influence the prevalence of the disease otherwise.

Because this disease causes such appalling suffering and because there is no hope of salvation, once the symptoms have appeared, and on account of the fact that rabies may develop unexpectedly in a locality and create havoc among the domesticated animals and consternation among the people, every effort should be made to subdue it. Nothing is accomplished as long as ordinances exist and are not enforced, and the disease is constantly prevalent in the rural districts. The measures that should be applied should be in proportion to the dimensions of the epizootic, and this is nation wide.

The question now arises whether it is not possible to protect ourselves as they do in other countries by the prophylactic inoculation of all dogs. I am aware that this is being carried out in some of our Eastern cities and states. In Japan the reports last year stated that approximately two thirds of the canine population of Tokyo, about 90,000 dogs, had been treated with the vaccine. That rabies must have been very prevalent in that city before that time is indicated by the report of Hata, who states that prior to the immunization campaign there were about 1,700 cases among the dogs. In double the number of dogs in which inoculation was practiced there were only forty-one cases, and in these the infection must have been active before the inoculation took place.

It is clear that the way has been indicated to all who are willing to accept the facts, and there is no reason why this method of prevention should not be carried out all over the country. The muzzling ordinances may be effective in some cities, but they do not protect the muzzled dog from being bitten by the rabid street dog. And even if dogs are muzzled in a few cities, there are many and by far the majority in which this is not the case; certainly, dogs are allowed to roam at large in the rural districts without any attempt at control. Why should we tolerate an ever present danger to ourselves and to our children simply because people are too lazy or too indifferent to care for the safety of their fellow human beings?

It is my opinion that this section should go on record as advocating strongly that compulsory inoculation against hydrophobia be made nation wide, and that in order to work consistently a committee be appointed to investigate the status of rabies in the United States and to suggest such other measures for prevention as may seem advisable. It is my conviction that a concerted effort should be made to stamp out rabies; isolated attempts, such as those of Tokyo and Philadelphia, should be regarded as examples and incentives. If England and Australia can suppress rabies entirely, we surely ought to be able to render it so scarce as to be almost negligible, though we may not completely eliminate it for many years to come.

VENEREAL DISEASES

The third and last great problem of national importance which I have chosen for discussion is venereal diseases. In my humble opinion, this is the greatest health problem we are facing at the present day in this or any other country. It is also one that receives only a small proportion of the attention it demands either from the profession or from the public. The latter may be expected to be indifferent. Age-long sex tabu has resulted in a reserve through which it is quite impossible to penetrate in the same way that we do with other diseases. Perhaps there was an element of reason and judgment behind this attitude at one period of the world's history; it seems at least to have played some part in the raising of woman from the position of a chattel to that of a human being. But in the present age of feminism, equal rights and equal standing, it should be modified because it has done more directly to foster and protect the propagation of the venereal diseases than any other element in our social make-up aside from prostitution itself. In many of the states there is a decided tendency on the part of the public to allow the knowledge of the venereal diseases to be broadcast. In others and notably in the Southern states, it is not yet permissible. Occasionally the newspapers hint at the possibility that such diseases exist, but that is about as far as it ever gets.

Last year 363,063 cases of venereal diseases were reported to the various state boards. The figures are those given out by the United States Public Health Service for 1924. But does any one really believe that this represents a true picture of conditions? Though the Public Health Service does not go so far as to assert that this figure, which is an increase over the previous year, actually means an increase in the prevalence, assuming that it may be due to better reporting by the physician, increased efficiency in diagnosis, and a gradual improvement in public knowledge, I am inclined to believe that it really means an increase in the number of infections. In my own state, to take as good an example as one needs, the reports show a decided increase over 1923, and there is no particular reason for believing in any increased efficiency or in greater conscientiousness in the physicians themselves. It is true that syphilis has changed places with gonorrhea and has superseded gonorrhea in point of prevalence since 1921. But it ranks fourth for 1923 and 1924 and third in 1922 among the thirteen most prevalent communicable diseases, while syphilis holds the second place in all these years, being second only to either influenza or measles. It is significant that in the five year period 1920-1924 the venereal diseases hold the second position and are but little short of the disease with the highest number of reports for this period; i. e., influenza.

In my opinion the venereal diseases are gradually increasing, and I do not think that our reported cases represent more than 10 per cent. of the actual number. But here again we are virtually at sea, and one man's guess is probably as good as another's. I am willing to admit that the cases reported as pneumonia, tuberculosis or malaria do not represent the true degree to which these diseases have occurred within the state. I do think, however, that there is, if possible, as little or less excuse for neglecting or refusing to report venereal cases when every physician knows that the physical suffering and misery that they cause is far greater, and that there is a social stigma involved that does not attach to the three diseases mentioned. All the more reason why the true prevalence of venereal diseases should be known when it is appreciated what they actually mean to the health of the public. I think that the comparatively little headway that has heretofore been made is dependent mainly on the deficient statistical data.

We do not know just how great the problem really is because we have no accurate figures with which to express its extent. This, however, is no reason why it should be neglected, as there is now a tendency to do. The federal appropriation for this sort of work has reached the vanishing point, and the state funds are, so far as I know, not overwhelmingly plentiful. I know that they are not in Louisiana. Without money and public backing it is not possible to do much, except as it happens to be part of the general routine of state health work. And when we ask why antivenereal activities should languish, we are met by any number of reasons. Chiefly that the public is indifferent: doesn't want the obnoxious things stuck under its nose continually; after all, venereal work was a "war measure," and there is no further need for it. It takes too much money anyhow. The doctors believe it decreases business, and the business man has been heard to say that the suppression of the red light district and prostitution to a certain extent has ruined trade, that the abolition of the "quarter" has destroyed one of the sights of the city and kept people away who would otherwise come. These are, of course, specious arguments which, whether or not they have some foundation in fact, exhibit an indifference to the welfare of human beings that borders on the criminal.

We must perforce wage war against the venereal diseases in the best manner we can. In the first place, the venereal clinic and its activities are of primary importance and in my opinion are the principal means of spreading knowledge to the masses. The clinics serve as places where the practicing physician can receive free instruction and work successfully in his community. In fact, the rural physician is one line of defense; he should be well grounded in the manner of handling venereal diseases.

The second measure for coping with the venereal diseases is the true suppression of prostitution and of potential prostitutes. This cannot be done by arresting, fining and lodging in jail. The jail is not the place for these women, though they be confirmed or just beginning to tread the downward path. A house of correction or farm, where they could be taken, treated, taught and possibly rehabilitated should be established. Arresting and otherwise tormenting prostitutes is generations old, and it has never been successful and is never likely to be.

The third method by which we may hope to cause a real decrease in the number of venereal diseases is medical prophylaxis. Probably the advantages to be derived from it are at present more theoretical than real. But the recent conference of venereal officers at Hot Springs went on record as acknowledging the value of prophylaxis and favored its introduction as an adjunct to clinical measures. There is every evidence to indicate that prophylaxis carried out properly within half an hour after contact is effective, and it is a mistake to believe that it encourages promiscuous relations. It is certainly better to cut down the venereal infection even 2 per cent. than to allow potential infectors to be at large. The main difficulty lies in getting people to use the packets. This was found to be the case in Pennsylvania, and prophylaxis was dropped for this reason. It is stated that five million prophylactic packets are manufactured and sold in the United States every year. So it may be doing some good.

The fourth and last means that we have at our command and which eventually may react more powerfully than any other to eradicate the venereal diseases is the teaching of social hygiene either to adults or to children. I am not of the opinion that it does much good with grown persons for the reasons that the latter are confirmed in their ways and no amount of talking, propaganda or direct instruction will alter them. With children, however, it is different. They can be taught in easy stages and in such a manner that the instruction will bear excellent fruit in time. I believe that something has been attempted in Oregon and that the experiment was very successful. It will, of course, be necessary to teach the teachers first, and this is the most difficult task because of closed and biased minds, and because there will be found but few who are capable of presenting this difficult subject in the proper light. However, the time will come, if it is not on the way, when parents with sufficient understanding will demand that their children be very carefully and gradually enlightened on sex matters.

In the category of social hygiene belongs the legislation that is intended to bar those suffering from venereal diseases from marriage. At the present moment the law, at least in Louisiana, leaves much to be desired. It requires a "thorough examination" for a compensation of $2. Nothing less than a thorough examination is of any value, and hardly any medical practitioner is going to devote a great deal of his time to this work for such a stipend. On the other hand, if the fee is raised, there are those who cannot or at least will not afford it, though if there is any argument on the part of the prospective bridegroom that he cannot afford to pay adequately for this service, he has no business in attempting to marry. To me it looks like the usual attempt to square a circle, and I believe that the best we can do is to hope that the more glaring and obvious venereal infections will not escape the examiner, while those who are well aware of their disease will be deterred from either examination or marriage.

CONCLUSION

This, in brief, represents my version of three great problems that face public health at the present day. I may err in my estimate of the gravity of the situation, because I am compelled to depend largely on personal judgment rather than on accurate statistics. That they are the most pressing, I will not directly assert; there would, I am sure, be many who would hold a different opinion. That they exist and demand attention, however, I am sure will be agreed, so that if I have contributed my bit toward focusing your attention on them for a very short time, I shall feel that my objective has been attained.

Commercial National Bank Building.

HYPEREMESIS GRAVIDARUM

TREATMENT BY INTRAVENOUS INJECTIONS OF GLUCOSE, AND CARBOHYDRATE FEEDINGS *

PAUL TITUS, M.D.
PITTSBURGH

Two previous communications bearing on the treatment of hyperemesis gravidarum have been published by co-workers and myself,[1] and in both of them we discussed the rôle which a carbohydrate deficiency in the diet and metabolism of pregnant women probably plays in the development of pregnancy toxemias.

Priority is claimed for these papers, moreover, in the recommendation that glucose administered intravenously is a definite and important therapeutic measure in both hyperemesis gravidarum and eclampsia. Indeed, this treatment seems now to have become so generally accepted as an addition to the established methods that it is scarcely necessary to make furthur claims as regards its value.

Glucose injected intravenously has at present a wide application as a therapeutic agent in various medical and surgical conditions, but there seems still to be a diversity of opinions as to the dose of the sugar, the preparations of glucose to use, the concentration of the solutions, and the frequency of the injections. One purpose of this paper, therefore, is an endeavor to establish more order in these matters, my conclusions being based on the experience of a large number of such injections for pregnancy toxemia of one type or another.

---

* From the Department of Obstetrics, St. Margaret Memorial Hospital.

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Titus, Paul; Hoffmann, G. L., and Givens, M. H.: The Rôle of Carbohydrates in the Treatment of Toxemias of Early Pregnancy, J. A. M. A. **74**: 777 (March 20) 1920. Titus, Paul; and Givens, M. H.: Intravenous Injections of Glucose in Toxemia of Pregnancy, J. A. M. A. **78**: 92 (Jan. 14) 1922.

REVIEW OF PREVIOUS WORK

It was pointed out in our earlier publications that frequent meals consisting chiefly of carbohydrates have been in use for years in the relief of nausea and vomiting of early pregnancy; also that it seemed impossible that the striking effects so consistently obtained could be due entirely to the "suggestibility of neurotic patients." We felt certain that there must be some physiologic basis for this, and our studies were begun in order to explain, if possible, what must otherwise remain an empiric treatment.

The work of Underhill and Rand [2] as well as Ewing,[3] in 1910, had demonstrated that in hyperemesis gravidarum there is an underlying disturbance of carbohydrate metabolism and storage. Consequently, in addition to the giving of "energy-yielding foods," the former recommended the administration of dextrose solution by bowel.

Duncan and Harding [4] next expressed themselves as convinced that "in early toxemias of pregnancy the dominant factor is a metabolic one" due largely to a carbohydrate deficiency. They reported a series of cases successfully treated by high carbohydrate feedings.

Over about the same period of time, Hoffmann, Givens and I [1] had been conducting investigations along similar lines, and our report of work done independently of theirs served further to strengthen this "carbohydrate deficiency" theory. We agreed with them completely with respect to the influence of diet and starvation, but offered a simpler and more direct suggestion than theirs, that carbohydrate deficiency during pregnancy is of twofold origin: (1) a relative deficiency due to an unexpected demand for glycogen on the part of the fetus and the enlarging uterus, and (2) an actual deficiency, augmented in the presence of nausea and vomiting, from lessened carbohydrate intake.

In addition to high carbohydrate feedings, Harding and Watson [5] now seem to have adopted our suggestion regarding the intravenous administration of glucose, but give it far too dilute (5 per cent.) and dissolved in salt solution instead of distilled water. Both of these factors contribute to the unpleasant and even dangerous reactions sometimes seen after such injections, and are not as we originally advised. Particular mention is made of this to emphasize the lack of uniformity in the preparation and the dosage of glucose among many clinicians who are now using it.

PHYSIOLOGIC BASIS FOR USE OF CARBOHYDRATES IN TOXEMIA

In a consideration of the physiologic basis for the use of carbohydrates in hyperemesis gravidarum, one's attention is immediately directed to the liver. The liver is always affected in fatal cases of toxemia, showing areas of focal necrosis (Stone,[6] Ewing,[7] Williams,[8] and others); it is the glycogen or sugar storing organ, and is also known to be the great detoxicating organ of the body. It functions less powerfully in the latter respect if depleted of its sugar, as is proved by the fact that an animal starved of carbohydrates may be killed by a smaller dose of any poison than is required for a similar animal that has been well fed (Roger [9]). The experiments of Davis and Whipple [10] also have shown that starved animals are especially susceptible to liver injury from chloroform and other poisons, whereas sugar and diets rich in carbohydrates exert a marked protective action against such liver injury.

Pregnancy causes a relative and sudden carbohydrate starvation of the mother because the fetal tissues are synthesized from glycogen, it having been demonstrated by Slemons' [11] simultaneous analyses of maternal and fetal bloods that the nutritive exchange through the placenta is almost entirely in the form of glycogen.

If it be granted, therefore, that the fetus suddenly begins to require of the mother enormous quantities of glycogen; that the liver is called on as the glycogen storehouse of the body to supply this; that an improperly balanced diet fails to furnish glycogen with which to restore the liver; that it is thus depleted of its sugar, and that when so depleted it becomes less able to combat any toxins that happen to be in the body, the mechanism by which a pregnancy toxemia develops and progresses is at once apparent.

I regard it as highly probable that such a profound carbohydrate deficiency may even account for part of the central necrosis of the liver lobules in toxemia of early pregnancy. One must remember that identical lesions may be produced experimentally by a simple starvation without pregnancy.

Table 1.—*Cases of Vomiting of Pregnancy*

	Reported 1920	Reported 1922	Present Report 1925	Totals
Group 1 (mild).................	32	30	129	191
Group 2 (moderately severe)......	29	27	32	88
Group 3 (serious or "pernicious").	15	11	23	49
Totals	76	68	184	328

This double source of deficiency in carbohydrates, namely, lowered intake with extra fetal consumption, is peculiar to pregnancy and may be considered as an actual starvation. There is no intention of asserting, however, that pregnancy toxemia and starvation are identical, for additional factors undoubtedly are involved. The contention is that every pregnant woman is a potential subject for toxemia, and a deficiency or starvation of carbohydrates permits this to develop precisely as the starved dog may be poisoned more easily than the well fed one.

The various theories regarding the possible sources of pregnancy toxins are familiar to all, and are far too numerous to mention in this paper.

GROUPING OF CASES

The cases in this series have been divided into three groups according to the severity of the symptoms. "Mild" cases are those which show more or less nausea with some vomiting; the "moderately severe" cases are those in which the patient is ill most of the day with persistent vomiting, but not necessarily in serious condition; while the "serious or pernicious" group is made up of those patients who are emaciated and dehydrated, with beginning nephritis, acidosis, and even [illegible]

---

[2] Underhill, F. P., and Rand, R. F.: The Peculiarities of Nitrogenous Metabolism in Pernicious Vomiting of Pregnancy, Arch. Int. Med. **5**: 61 (Jan.) 1910.

[3] Ewing, James: The Pathogenesis of the Toxemia of Pregnancy, Am. J. M. Sc. **139**: 828 (June) 1910.

[4] Duncan, J. W., and Harding, V. J.: A Report on the Effect of High Carbohydrate Feeding on the Nausea and Vomiting of Pregnancy, Canadian M. A. J. **7**: 1057 (Dec.) 1918.

[5] Harding, V. J., and Watson, B. F.: Carbohydrates in the Nausea and Vomiting of Pregnancy, Lancet **2**: 649 (Sept. 23) 1922.

[6] Stone, W. S.: Toxemia of Pregnancy, Am. Gyn. **3**: 518 (Dec.) 1903.

[7] Ewing, James: The Pathological Anatomy and Pathogenesis of the Toxemia of Pregnancy, Am. J. Obst. **51**: 145 (Feb.) 1905.

[8] Williams, J. W.: Pernicious Vomiting of Pregnancy, Bull. Johns Hopkins Hosp. **17**: 71 (March) 1906.

[9] Roger: Thèse de Paris, 1887.

[10] Davis, N. C., and Whipple, G. H.: The [illegible] Various Diets on the Liver Injury [illegible] Arch. Int. Med. **23**: 612 (May) 1919.

[11] Slemons, J. M.: The Nutrition [illegible] (Aug.) 1919.

The last are unable to retain food or water and usually are in desperate straits.

DIETETIC TREATMENT OF MILD CASES

Details of the dietetic treatment of mild cases of hyperemesis gravidarum have been outlined not only in our first paper [1] but also in the works of many others and need not be repeated here. It is sufficient to say that the patients should be given precise directions as to when and what to eat. They should be told to eat a total of at least seven small meals a day at definite intervals, beginning before arising in the morning and ending at bedtime in the evening. Carbohydrate foods of all kinds should be chosen, and the physician should particularly specify such articles as cooked fruits, dates and raisins, green vegetables, crackers and cookies, honey, sugar, and such desserts as puddings, custards and ices.

Table 2.—*Analysis of Group 1 (Mild Vomiting of Pregnancy)*

Treated at home by regulation of diet

(*a*) Previously reported, 1922			62
(*b*) Present report, January, 1922, to January, 1925			129
Total			191
Relieved * within 7 days	(*a*) (*b*)	49 102	151 or 79 per cent.
Relief from 7 to 14 days	(*a*) (*b*)	8 18	26 or 13 per cent.
Improved slowly (partial failure)	(*a*) (*b*)	5 9	14 or 7 per cent.
No improvement (failure)			0

* "Relieved" indicates not only cessation of vomiting, but return to "soft" or "general" diet, and patient ready for discharge.

A formula may be given the patient to prepare as follows: 1½ ounces of lactose, 2½ teaspoonfuls of sodium bicarbonate, dissolved in 1 pint of water, this being approximately 10 per cent. of lactose and 2 per cent. of soda in solution. Two ounces of this is to be taken every two hours.

TREATMENT OF "MODERATELY SEVERE" CASES

Isolation in the hospital is advisable wherever possible, and to simplify the treatment it is well to have a typewritten, detailed outline of a general course of management to attach to the patient's chart. This routine form is to be varied, however, according to individual needs.

Beginning the treatment in the evening if possible, she should fast completely for a few hours, then be given only water in small amounts by mouth until morning. At this time easily assimilated liquids such as sweetened orange albumin, glucose solution, or broth are begun and given at hourly intervals until the patient goes to sleep at night.

She receives two daily enemas (morning and evening) each followed by a dose of chloral, 10 grains (0.65 gm.), and bromids, 30 grains (2 gm.), by bowel, proctoclysis of glucose and soda solution being given as constantly as possible. Intravenous injections of glucose should be begun promptly, especially if vomiting does not cease at once, and are repeated once or twice daily, depending on indications and response to the treatment.

Usually by the third day small and frequent "doses" of soft nourishment will be retained, and this improvement is followed by a gradual daily increase in both quantity and variety of food. Both the nausea and the vomiting have usually disappeared entirely by the end of a week's treatment, although a few more days may occasionally be necessary for the return to general diet.

Kosmak [12] has formulated an absolutely fundamental rule in the treatment of these patients. He says, "The cardinal fact to be borne in mind is that no routine method applicable to all classes of cases can be recommended, and that in each instance, particularly in the severer types, consideration must be given to the individual patient. While we can follow certain general routine procedures in certain groups of cases, they must be changed as circumstances may dictate."

TREATMENT OF PATIENTS IN THE "SERIOUS OR PERNICIOUS" GROUP

The treatment of patients in Group 3 is an adaptation of the treatment for Group 2 patients applied more vigorously.

Intravenous injections of glucose are begun immediately and repeated from one to three times daily. Proctoclysis of glucose solution supplements this, and the administration of fluids by mouth proceeds slowly and with caution. Table 4 shows the results obtained in this group.

From the foregoing, it is apparent that intravenous injections of glucose are to be used only in conjunction with the usual rational methods of handling this and all other types of pregnancy toxemia.

The liver-sparing action of glucose is probably its most important effect in these cases, but it also increases elimination, supplies glycogen directly to the depleted tissues, combats acidosis, and restores sugar to the cells of the liver which have been drained of their glycogen.

It is my impression expressed in earlier papers that glucose injected intravenously serves not only to spare the liver functionally but also actually to cause regeneration of the liver cells. This conclusion is based on the fact that sections of liver tissue from fatal cases of hyperemesis, acute yellow atrophy, and eclampsia which received these glucose injections, not only show evidences of repair, but also less necrosis than other similar cases not so treated. On account of this, pathologic diagnosis could be made from the slides only with difficulty and hesitation, even when the case had been clear-cut and typical clinically.

Table 3.—*Analysis of Group 2 (Moderately Severe Vomiting of Pregnancy)*

Treated in hospital by isolation, regulation of diet, and as required intravenous injections of glucose

(*a*) Previously reported, 1922			56
(*b*) Present report, January, 1922, to January, 1925			32
Total			88
Relieved * within 7 days	(*a*) (*b*)	45 30	75 or 85 per cent.
Relief from 7 to 14 days	(*a*) (*b*)	9 2	11 or 12.5 per cent.
Improved slowly (partial failure)	(*a*) (*b*)	2 0	2 or 2.2 per cent.
No improvement (failure)			0

* "Relieved" indicates not only cessation of vomiting, but return to "soft" or "general" diet, and patient ready for discharge.

Dr. S. R. Haythorn of Pittsburgh has made the interesting suggestion that liver regeneration cannot be proved from this, but says that my sections may indicate that the glucose injected early in the disease process before necrosis was extensive held the liver destruction at a standstill from that point on.

---

[12] Kosmak, G. W.: The Toxemias of Pregnancy, New York, D. Appleton & Co., 1922, p. 90.

PREPARATION AND DOSAGE OF GLUCOSE SOLUTION

Erlanger and Woodyatt,[13] in their work on shock, and Litchfield,[14] in his intravenous use of glucose for pneumonia, were pioneers in developing this therapeutic measure. It was the influence of Litchfield's work that led me to use it in pregnancy toxemias. He had recommended that glucose be given in fairly strong solutions for pneumonia, but in this new field it seemed that the dosage and concentration were still matters for further investigation.

At first, therefore, I employed small doses in weak dilutions; but, proceeding cautiously though fairly rapidly, I have increased the dose of glucose from 15 gm. in 250 c.c. of water to 50 gm. in 200 c.c. or even 75 gm. in 300 c.c., with constantly better results.

Wilder and Sansum [15] have demonstrated by clinical experiments that 0.8 gm. of glucose per kilogram of body weight may be given per hour without causing glycosuria. This indicates, therefore, that the average dose for a normal person is about 1 gm. for each kilogram of body weight. An average woman weighs between 50 and 60 kg., so that from 50 to 60 gm. of glucose is a full dose. More than this may be spilled out through the urine but, because its appearance there is of no particular significance, it was decided to establish the figure of 75 gm. as the usual initial dose, subsequent doses to be 50 gm. Those clinicians who give less than a therapeutic dose should remember that this is comparable to administering 1/50 or 1/100 grain of morphin, and expecting the usual effect merely because it is morphin.

The glucose should be dissolved in distilled water, instead of salt solution as has been variously recommended, because injections of the latter combination seem so often to be followed by unpleasant or even dangerous reactions.

The solution should be about 25 per cent., or 50 gm. in 200 c.c. of water. Weak solutions possibly contribute to reactions and certainly overload the circulatory system in too short a period of time if sufficient quantity is given to carry a therapeutic dose of the glucose.

Moreover, the use of hypertonic solutions favors a more rapid interchange of substances in tissues and blood stream, so that toxins are diluted, edema lessened, and the sugar seized by the tissues more rapidly.

The glucose should be chemically pure. A 25 per cent. solution is made by dissolving 25 gm. of glucose in sufficient distilled water to make 100 c.c. (or multiples of these figures for larger quantities.) This should be filtered five or six times, and then sterilized in a steam sterilizer for one-half hour at 100 C. on three successive days. It may be prepared more quickly for emergencies by being sterilized in an autoclave at 15 pounds pressure for twenty minutes.

Solutions showing caramelization or sediment should be rejected, and under no circumstances should commercial or confectioners' impure glucose or corn syrups be used as a base for these solutions for intravenous administration if reactions or even deaths are to be avoided.

Solution kept in cotton-stoppered and foil-sealed flasks will show comparatively little change in the hydrogen ion content over a considerable period of time, even though buffer salts have not been added, so that such solutions may be prepared in hospital laboratories in advance of the need for them.[16]

Dr. H. P. DeForest of New York made the suggestion some time ago that this treatment is not available outside of hospitals unless one has unusual laboratory facilities, and that sterile ampules might be prepared commercially for use even in outlying districts. This matter was taken up, and several reliable pharmaceutic firms have prepared different sized ampules of varying dilutions. The expense of these preparations is prohibitive for constant daily use in the treatment of a case, but they supply an urgent need in emergencies.

EFFECT OF GLUCOSE WHEN GIVEN WITH INSULIN

Based on the fact that insulin causes such a rapid disappearance of diabetic acidosis, Thalhimer [17] has suggested that it should be useful in the toxemic vomiting of pregnancy. He [18] reports excellent results in ten patients treated with insulin combined with the intravenous administration of glucose.

TABLE 4.—*Analysis of Group 3 (Serious or "Pernicious" Vomiting of Pregnancy)*

Treated in hospital by isolation, intravenous administration of glucose either alone or with insulin, proctoclysis, hypodermoclysis, rectal feedings, and with improvement a regulated diet.

(a) Previously reported, 1922			26	
(b) Present report, January, 1922, to January, 1925			23	
Total			49	
Relieved * within 7 days	(a)	21	40 or 82	per cent.
	(b)	19		
Relief from 7 to 14 days	(a)	3	4 or 8	per cent.
	(b)	1		
Improved slowly (partial failure)	(a)	0	1 or 2	per cent.
	(b)	1		
No improvement (failure and therapeutic abortion)	(a)	2	4 or 8	per cent.
	(b)	2		
Deaths	(a)	1	3 or 6.1	per cent.
	(b)	2		

The three deaths occurred in the group of four patients classed as "no improvement." All required therapeutic abortion. One woman recovered, but was partially paralyzed for months from multiple neuritis. Two of the patients who died were clinically cases of acute yellow atrophy of the liver.

* "Relieved" indicates not only cessation of vomiting, but return to "soft" or "general" diet, and patient ready for discharge.

For a long time I shared Thalhimer's views, but recently have begun to question there being any real clinical advantage in the addition of insulin to the glucose injections. He is now using larger amounts of the latter than heretofore, a point which I have long maintained is essential. Furthermore, if blood sugar readings were to disclose in his cases that a hyperglycemia from the injected glucose persists in spite of the insulin, any beneficial effects might as properly be attributed to the extra sugar as to the insulin.

Among my patients this combination has been used during the period from October, 1923, to March of this year. One unit of insulin was injected intravenously with every 5 to 10 gm. of glucose, this relation being gaged by frequent blood sugar readings. This approximates Thalhimer's dosage of 1 unit to 3 gm. because he gives the insulin hypodermically.

Nine patients seriously ill with hyperemesis, one patient with acute yellow atrophy of the liver, and five patients with eclampsia have been thus treated during this time. Among these cases there have been good results, but not noticeably better than similar ones given glucose alone. Moreover, two of my three fatal cases were treated by this combined method, as was also an additional fatal case of acute yellow atrophy not listed in Table 4 because the patient was seen after Jan. 1, 1925, when this series ended.

---

[13] Erlanger, Joseph; and Woodyatt, R. T.: Intravenous Glucose Injections in Shock, J. A. M. A. **69**: 1410 (Oct. 27) 1917.

[14] Litchfield, Lawrence: The Abuse of Normal Salt Solution, J. A. M. A. **63**: 307 (July 25) 1914; Glucose Intravenously as a Therapeutic Measure, ibid. **71**: 503 (Aug. 17) 1918.

[15] Wilder, R. M., and Sansum, W. D.: *d*-Glucose Tolerance in Health and Disease, Arch. Int. Med. **19**: 311 (Feb.) 1917.

[16] Givens, M. H.: Personal communication to the author.

[17] Thalhimer, William: Insulin Treatment of the Toxemic Vomiting of Pregnancy, Surg., Gynec. & Obst. **39**: 237 (Aug.) 1924.

[18] Thalhimer, William: Insulin and Glucose Treatment of Excessive Vomiting of Pregnancy, Am. J. Obst. **9**: 673 (May) 1925.

Thalhimer[18] makes an assertion with which I desire to take friendly issue; namely, that "when insulin is given along with the glucose, vomiting ceases, and the patient's condition improves in a much shorter time than is stated in the papers of these investigators [Titus, Hoffmann and Givens] as a result of glucose therapy alone."

A study of Tables 3 and 4 indicates that 85 per cent. of the group of patients with moderately severe vomiting, and 82 per cent. of the group with serious or "pernicious" vomiting, were totally relieved within seven days. This does not mean that it required seven days to check the vomiting, but that in this brief period they had been brought from a state of serious illness up to the point at which they were eating and retaining either a "soft" or a "general" diet, and were ready for discharge.

After intravenous injections of glucose in large doses, relief from acidosis, dehydration and vomiting was almost invariably the case and always the expected thing within from twelve to twenty-four hours, and from then on one's chief concern is with the gradual process of reaccustoming the stomach to food and water. Intravenous injections of glucose are usually necessary for a few more days after the first, but a very clear idea may be had as to the probable course of a case within the first twenty-four to thirty-six hours. Glucose therapy alone gives results that are often extremely spectacular.

A writer[19] recently stated that,

> According to a view recently detailed by Macleod, . . . insulin causes the sugar of the blood (and tissues) to diminish in both the normal and the diabetic animal, partly because of an increase in the relative amount of carbohydrate that is metabolized and partly because some of the glucose is converted into nonsaccharine material, which is mainly glycogen in diabetes, but is some other substance in the normal animal. In the latter case, insulin actually causes the glycogen stores to become depleted because of the demand for glucose which it sets up, partly to form this unknown substance and partly to be oxidized.

Again:[20]

> The liver, a storehouse of the sugar-forming glycogen, is not primarily concerned in the hypoglycemic action of insulin, for the characteristic effect of the latter continues even after exclusion of the hepatic tissues [Mann and Magath]. Macleod . . . felt forced by exclusion to conclude that insulin . . . must pass into the tissues and set up in them some process that leads to the reduction in the amount of free glucose, thereby creating, as it were, a vacuum for this sugar, with the result that glucose is removed from the blood. . . . It is not improbable that the increased disappearance of sugar from the blood into the muscles is the result of an increased rate of metabolism of glucose in the muscles during the action of insulin.

To offer a homely simile, injection of glucose alone is like supplying fuel to a furnace which has burned low, at the same time storing some in the fuel bin, whereas to add insulin to the glucose is like pouring kerosene on the coal to make it burn faster.

If these views are correct, the use of insulin with intravenous injections of glucose is contraindicated in toxemic vomiting of pregnancy and all other acidosis, because storage of sugar in the liver and not its combustion in the muscles is the effect desired.

Briefly expressed, therefore, the purpose of this paper is to emphasize that it is ordinarily unnecessary for pregnant women to suffer with nausea and vomiting; that glucose injected intravenously will usually afford prompt relief from even severe degrees of acidosis; that the doses given should be sufficiently large and frequent to obtain a full therapeutic effect, and that there is no therapeutic basis for the addition of insulin to such injections of glucose.

SUMMARY

1. Intravenous injection of glucose for hyperemesis gravidarum, first recommended in two previous communications by co-workers and myself, has now come to be an accepted method of treatment.

2. Because of a diversity of opinions on such matters as the dose of the sugar, the preparations of glucose to use, the concentration of the solutions, and the frequency of the injections, detailed directions are outlined in this paper.

3. The principal points to be observed are that: (1) the therapeutic dose of glucose for an adult of average size is from 50 to 75 gm., and smaller doses do not give the desired effect; (2) any preparation of glucose for intravenous administration must be chemically pure because reactions in the patient are usually traceable to impure or carelessly prepared solutions; (3) hypertonic solutions (preferably 25 per cent.) act more promptly and favorably than weak solutions, and (4) single injections are safer than a continuous flow, but must be repeated from one to three times daily according to the condition and response of the patient.

4. Favorable results are now reported in a total series of 328 cases of hyperemesis gravidarum treated by high carbohydrate feedings or intravenous injections of glucose. Therapeutic abortion was performed four times, and three of these patients died. Two of these cases were clinically to be classed as acute yellow atrophy of the liver.

5. The basis for the treatment of hyperemesis gravidarum by glucose and other carbohydrates whether given by vein, by mouth, or by bowel is to be found in the physiologic assumption that there is a carbohydrate deficiency in the maternal organism.

6. This deficiency occurs as the result of an unusual demand for carbohydrates made by the growing fetus, and a diminished carbohydrate intake in the patient's diet, thus being a combination of an indirect and a direct starvation.

7. Pregnancy toxemia and starvation are not identical, for additional factors undoubtedly are involved. Every pregnant woman is a potential subject for toxemia, and if by a starvation of carbohydrates the liver is depleted of its reserve glycogen, its detoxicating action is thereby impaired, and a more profound effect from toxins from whatever source is thus made possible.

8. Carbohydrate deficiency in pregnancy toxemia probably is the cause of part of the central necrosis of the liver lobules seen in fatal cases, its action being the same as that by which simple starvation produces similar necrosis.

9. The action of glucose is probably twofold: (1) a direct liver-sparing effect, and (2) a stimulation of the storage properties of the liver cells, which is practically identical with regeneration and repair.

---

[19] The Action of Insulin, editorial, J. A. M. A. **84**: 597 (Feb. 21) 1925.

[20] Insulin and the Carbohydrate Metabolism of the Muscles, editorial, J. A. M. A. **84**: 1499 (May 16) 1925.

10. Ampules of concentrated glucose solution which may be diluted as required are now being prepared by reliable pharmaceutic firms, and may be obtained for emergency use or when laboratory facilities are not available.

11. A limited but fairly comprehensive experience with the combined use of insulin and glucose injected intravenously has led to the belief that this is of no clinical advantage. Moreover, there is evidence to show that insulin actually causes glycogen stores to become depleted, by its demand for glucose to be oxidized and otherwise metabolized. In toxemia of pregnancy, therefore, in which storage in the liver and not combustion of the injected sugar is the desired result, the simultaneous administration of insulin is contraindicated.

1015 Highland Building, E. E.

ABSTRACT OF DISCUSSION

Dr. J. P. Greenhill, Chicago: I should like to ask Dr. Titus whether he has had an opportunity of using the duodenal tube in the severe cases of hyperemesis. At the Chicago Lying-In Hospital we have employed the duodenal tube first advocated by Portis and Paddock for the vomiting of pregnancy, with great success. We have also used intravenous injections of glucose, with or without hypodermic injections of insulin, in a few cases and with good results. It would seem that the combination of the duodenal tube and glucose intravenously would give quicker and more lasting results in very severe cases of hyperemesis than the use of glucose intravenously alone. Not only may fluids and carbohydrates be given through the duodenal tube, but also proteins and fats in the form of milk, cream and eggs. Furthermore, there may be added through the duodenal tube fruit juices, such as orange juice and also laxatives. Perhaps the combination of the duodenal tube and the intravenous use of glucose will almost entirely eliminate the necessity for terminating pregnancy in very severe cases of hyperemesis. I might add that at the Chicago Lying-In Hospital the belief is that, perhaps, all cases of hyperemesis have a psychologic basis. In many cases, in addition to the psychogenic factor there is superimposed a toxemic element. One of our interns very recently, instead of giving glucose intravenously, gave nothing but distilled water, in the belief that he was giving glucose. The result was just as miraculous as when glucose is given. Such an occurrence, however, does not detract from the value of the intravenous use of glucose in advanced cases of hyperemesis gravidarum.

Dr. William Thalhimer, Milwaukee: Dr. Titus' paper demonstrates again the difficulty of comparing clinical results observed by different workers unless exactly the same methods are used. The standards of comparison of clinical results should be the same as for comparison of results obtained in the laboratory. This does not mean that Dr. Titus' methods in using insulin and glucose are any better or worse than the methods I have used, but it is manifest that there is a marked difference in our methods. Dr. Titus has asked me to say a word concerning our methods, especially about the amount of glucose and fluid that is given the patient. The initial treatment consists of 100 gm. of glucose given intravenously in as much water as the dehydrated condition of the patient indicates (1 or 2 liters) and the hypodermic administration of 1 unit of insulin for every 3 gm. of glucose. This is a much larger dose of insulin than Dr. Titus has given, and, I believe, accounts for his impression that his giving of insulin has not bettered the already good results that he obtains by giving glucose only. I inject the glucose solution intravenously more slowly than he does (taking from three to five hours for this), and give more glucose and more insulin. It has been impossible for me to gain an accurate idea from Dr. Titus' articles or even from his communication today, as to exactly how long it is before his patients cease vomiting or before acetone bodies disappear from the urine and other signs of acidosis disappear. He has not stated these important time elements definitely. The impression I have gathered from him is that cessation of vomiting in twenty-four hours is considered a good result. Most of the patients I have treated ceased vomiting in from six to eight hours, and in the same time acetone bodies were no longer present in the urine and the blood alkali reserve had returned to practically a normal figure; and only the most severe and protracted excessive vomiting of pregnancy has been treated by me. Dr. Titus' fear that insulin might do harm to these patients is unfounded. The amount of insulin used can cause only sufficient carbohydrate utilization to hasten the disappearance of the acidosis, and glycogen storage also. It would take much larger doses of insulin to cause loss of glycogen from the liver, doses comparable to convulsive doses for animals. I can only conclude by making a plea, to those using these methods, for the accurate recording in their publications of complete details of condition of the patients, laboratory data, methods of treatment, dosage of glucose and insulin, time for cessation of vomiting and of acidosis, etc. Only with these aids can results be evaluated and real progress in knowledge be accomplished.

Dr. Carl Henry Davis, Milwaukee: The use of the duodenal tube in the treatment of pernicious vomiting was first suggested by a general surgeon, Allen B. Kanavel. In a recent case of very severe vomiting in which we tried to introduce the duodenal tube, it was observed under the fluoroscope that the bucket would pass down to the region of the pylorus and then an extreme spasm in that portion of the stomach would turn it back and force it out. This suggests that there may be a true pylorospasm in some of these cases of extreme vomiting which plays a part in causing the pernicious condition. Curiously, it has been noted that the use of the fluoroscope in cases of pylorospasm may serve as a therapeutic measure. Dr. Titus' observations are of great interest to us all, even though we may disagree with him in certain particulars. My experience with glucose goes back over ten years, when I first began using a 3 per cent. solution as a retention enema in the more severe types of vomiting, combining it with dietetic management and large doses of sodium bromid. Later, when the intravenous use of glucose was adopted, I continued the use of retention enemas in addition to the intravenous therapy. It is my belief that large doses of bromid and freedom from nervous tension are an essential part of the treatment. After observing the patients whom Dr. Thalheimer has treated with glucose and insulin, we are convinced that with this combination it is possible to clear up the signs and symptoms of acidosis much more quickly than can be accomplished by glucose alone. The patient with severe vomiting needs large amounts of fluid, as well as glucose, and, while the concentrated solution used by Dr. Titus may be considered rational treatment for the eclamptic patient with urinary suppression, the cases under discussion require larger amounts of a weaker solution. I congratulate Dr. Titus on his work, but would urge that before he condemns insulin he follow carefully the blood alkali reserve and urinary signs of ketosis in a group of patients treated by his present method, and compare the results with a second group in which he follows strictly Thalhimer's recommendations.

Dr. J. P. Gardiner, Toledo, Ohio: From the postmortem examinations of two cases which I was able to study for some time, I found the pathologic picture to be the same as Adami described in fatal cases of inanition. In pernicious vomiting of pregnancy, the patients do not die of the original cause. Most of them have been vomiting for from three to six weeks. The evidence tends to show that they die primarily of starvation and dehydration. One of the patients, who had been unable to retain anything in her stomach for six weeks previously, was kept alive for twenty-nine days by the intravenous administration of 10 per cent. glucose solution in 1,000 c.c. of physiologic sodium chlorid solution, given as often as symptoms demanded. The cause of pernicious vomiting must be studied further. I have been stimulated by Dr. Titus' reports and his illustrations. My cases did not go on to yellow atrophy of the liver but probably would have done so had not nourishment been given. Dr. Titus affirms that the liver under glucose administration regenerates, and there is not produced the intense type of liver degeneration.

Dr. J. B. De Lee, Chicago: Hyperemesis in pregnancy I divide into two classes, the primary toxemia and the secondary toxemia. If it is a case of primary toxemia of pregnancy producing vomiting, it is highly important that it be recognized at once, because, unless active treatment is given, the patient will die. If the treatment shows no results within the first week, one may be sure that unless the uterus is emptied the patient will die, and she will die manifesting the clinical picture of acute yellow atrophy of the liver or a toxemia resembling it. It is not starvation. How to recognize the primary toxic form of vomiting is, in a way, easy. The prostration at once becomes extreme; the patient changes first from an ashen to a slightly subicteric hue and then to a marked yellow. The time to become alarmed is early, before the pulse has shown signs of myodegeneratio cordis, before the icterus, before the delirium, etc. Fortunately, the secondary toxemia cases are the largest group. It is usually a toxemia produced by starvation including dehydration. By far the larger number of these milder forms of toxemia are psychologic in origin. It may be surprising to know that the husband is one of the most potent causes of hyperemesis gravidarum. A woman is sensitized to her husband through the fetus, and the mere presence of her husband is sufficient to produce a reaction in the form of vomiting. Sometimes isolation of the wife from the husband may produce a cure. I have had that experience, not once but many times. A woman may take a dislike to her husband and go on a "hunger strike" and a "vomiting strike" as a protest. By a consideration of that phase of the case, I have cured several obstinate vomiting cases. The second point I wish to discuss is focal infection as a cause of hyperemesis. We have had three cases in which treatment for sinus trouble cured the vomiting. In line with the psychic cause of vomiting is the recommendation to use treatment that causes pain or discomfort. It may be that the duodenal feeding makes cures not by its own action but by its disagreeable methods. Dr. Williams of Baltimore suggests curing hyperemesis by using a dull needle for hypodermic medication, and quotes one case in which he threatened to use a cautery over the stomach. I believe that some of the results we get from corpus luteum hypodermically and by mouth are produced in this manner. In using the duodenal tube, if belladonna is employed to relax the spasm of the pylorus greater success will be obtained. As to the amount of glucose and water to be given, if the patients are very much dehydrated, it does not make much difference about the concentration of the solution. Therefore I give large amounts of water with the solution. I have never seen any bad results from this treatment. The glucose solution should be freshly made, not over 12 hours old, and only double distilled water, should be used; then the results will be satisfactory. We have had no reactions since we adopted these precautions.

Thyroid and Pituitary Extracts in Obesity.—In certain cases of obesity a beneficial effect both on the obesity and on the carbohydrate metabolism can be expected from the administration of thyroid and whole gland pituitary extracts; and it is suggested that a combination of these two extracts given together will produce better results than when thyroid extract is given alone. But the improvement in the condition is not maintained for any length of time after treatment is discontinued. Sooner or later the metabolism reverts to its former state, and again the patients gain weight. It does, however, seem possible, when once the weight has been reduced, to maintain the new level of metabolism on decreased doses, and by alternating periods on and off treatment to help these patients considerably. The sugar tolerance curves after treatment also seem to show that certain preparations of pituitary extract are active when given by the mouth and have a definite influence on carbohydrate metabolism, but these extracts, when given in this way, are not effective in reducing obesity.—Hill, H. G.: *Proc. Royal Soc. Med.* **18**:36 (June) 1925.

CLINICAL AND SEROLOGIC STUDIES OF NEUROSYPHILIS WITH TRYPARSAMIDE THERAPY

JULIAN MAST WOLFSOHN, M.D.
AND
CARLOS LEIVA, M.D.
SAN FRANCISCO

Neurologists have recognized for years that, in order to treat neurosyphilis effectively, the therapeutic agent must not only have therapeutic activity against the spirochetes but also be able to penetrate easily into the cerebrospinal fluid and nervous parenchyma.

Voegtlin[1] has given us valuable data on both these points. He has found that certain arsenicals, such as atoxyl, have relatively high effectiveness, but in therapeutic doses offer certain serious objections, chief of which are the rather frequent serious visual defects following their administration. He found also that certain other arsenicals, such as arsphenamin, neo-arsphenamin and silver arsphenamin, lack the essential penetrative power for the infected tissues, thereby failing to reach the last parasites in sufficient amount to cause their death.

Jacobs and Heilbrunner prepared a derivative of atoxyl—tryparsamide, the sodium salt of *n*-phenylglycinamid-*p*-arsonic acid. This was tested biologically by Brown and Pearce,[2] and later by Voegtlin and others. All these observers have found higher penetrability of the arsenic into the cerebrospinal fluid and nervous tissues after the intravenous injection of tryparsamide, which contains 25.32 per cent. arsenic, than after similar injections of other arsenicals.

Mehrtens found that this penetrability can be even further enhanced by previously irritating the meninges.

Many clinical reports on tryparsamide therapy have recently appeared. Some writers, like Loevenhart and his co-workers,[3] are especially enthusiastic with the result of tryparsamide therapy on general paralysis.

Solomon and Veits[4] sound a more cautious note, but admit that "the best results are obtained by its use in conjunction with other antisyphilitic remedies."

Cady and Schwab likewise find tryparsamide one of the most valuable remedies for neurosyphilis.

Several other reports at hand testify to the effectiveness of tryparsamide therapy, especially in general paralysis and certain cases of tabes.

With the object of testing the value of tryparsamide, and bearing in mind the difficulties in producing effective penetration of the drug into the spinal fluid and nervous parenchyma, we followed a special procedure in each of thirty-seven cases of neurosyphilis which form this series.

We have followed the advice of Wade and Brown as to types of neurosyphilis to be treated, also the dosage (2.5 gm.), and contraindications to its use. When visual disturbances were complained of following the administration of tryparsamide, the patient was no longer treated with the drug.

Of these thirty-seven cases, twenty-one were general paralysis in different stages of the disease; ten, tabes;

---

[1] Voegtlin, C.; Dyer, H., and Smith, M. I.: *Penetration of Arsenic into the Cerebrospinal Fluid*, Pub. Health Rep. **38**: 1003 (May 11) 1923.

[2] Brown, W. H., and Pearce, Louise: Tryparsamide: Its Action and Use, J. A. M. A. **82**: 5-9 (Jan. 5) 1924.

[3] Lorenz, W. F.; Loevenhart, H. S.; Bleckween, W. J., and Hodges, F. J.: *The Therapeutic Use of Tryparsamide* in Neurosyphilis, J. A. M. A. **80**: 1497-1502 (May 26) 1923.

[4] Solomon, H. C., and Veits, H. R.: *Comparison of Tryparsamide* and Other Drugs in the Treatment of Neurosyphilis, J. A. M. A. **83**: 891 (Sept. 20) 1924.

two, syphilitic transverse myelitis; three, syphilitic hemiplegias, and one, Erb's syphilitic spinal paralysis. Twenty-one patients (twelve general paralytic, and eight tabetic) received in the first course eight weekly intravenous injections of 2.5 gm. of tryparsamide, combined with spinal drainage. Thirty-seven cases, including the foregoing, received a second course six months later. No antisyphilitic treatment was given in the interim.

The procedure of the second course was similar to the first in every detail, except that after the spinal drainage the patient was given 30 c.c. of a 30 per cent. sterile sodium chlorid solution intravenously.

It was felt that since the arsenic content of the cerebrospinal fluid was greater after simple spinal drainage, one should reasonably expect a still greater arsenic penetration of both the spinal fluid and the nervous parenchyma after using hypertonic salt solution. If one administers the salt solution intravenously while the lumbar puncture needle is in situ, the fluid is seen to escape more and more slowly, after three or four minutes, and in about five minutes to stop, and finally air is sucked through the needle into the subarachnoid space. This indicates that there is absorption not only of the subarachnoid spinal fluid, but also of that in the parenchyma.

Solomon[5] has previously described the effect of hypertonic solutions on the cerebrospinal fluid pressure. He cautions against its haphazard use and says that "the process causes a great deal of discomfort and inconvenience to the patient."

We have given about 350 injections of intravenous therapeutic saline solution without mishap. During its injection the patients described a sense of heat and burning in the occiput which soon involved the whole head, a feeling of constriction about the neck, dryness and burning of the throat, and, finally, a mild frontal headache. All these symptoms disappeared within the course of from ten to twenty minutes, except the headache, which sometimes persisted for from ten to sixty minutes. The blood pressure readings just before, during and after the treatment showed an initial rise of from 10 to 20 mm. of mercury, followed by a drop of from 30 to 40, and in about five hours the blood pressure was again about the patient's normal.

Different strengths of hypertonic salt solution did not vary the reaction symptoms in kind or degree. One note of caution is, however, necessary; viz., it is important to keep within the lumen of the vessel, as one drop of the salt solution in the wall of the vessel causes severe, long lasting pain, and frequently local thrombosis ensues.

RESULTS OF TREATMENT

Twenty patients received in the first course eight weekly intravenous injections of tryparsamide (2.5 gm. each), combined with spinal drainage. One-sixth grain (0.01 gm.) of red mercuric iodid was given by mouth three times daily during the course.

After an interval of six months without treatment, a second course similar to the first was given, concluding each treatment with 30 c.c. of a 30 per cent, sodium chlorid solution administered intravenously. Seventeen patients received two eight week courses by the latter method.

Sixteen of the twenty-one cases of general paralysis, in all stages of the disease, so treated showed some clinical improvement. This began to manifest itself after the third treatment. Case 1 shows this improvement in a spectacular way.

Case 1.—*History.*—C. A., aged 46, an Alsatian waiter, unmarried, complained of nervousness, weakness and loss of memory of eighteen months' duration. His family and past history was negative, except for a primary lesion fifteen years before. There were no secondary symptoms. The patient had been impotent for two years.

He was waiting on table in the fall of 1922, when he noticed that he could not remember the orders given him. He was very "nervous." One day he fell down in the dining room, and spilled a tray of dishes. During the next few months he fell to the floor several times. There were no convulsions or lancinating pains. He was able to get up and proceed without incident a few minutes after each attack. Meanwhile his speech became slow and stuttering, and his memory failed rapidly; so that at the time of entrance to the hospital, he was unable to give a clear, consecutive history of himself.

Examination.—The patient lay in bed most of the time, and was restless and apathetic. He was very slovenly in conduct and appearance. He ate like an animal. He had a marked sense of well-being. He gave no complaints. He was inclined to be grandiose. There were no hallucinations. His memory for recent and past events was very poor. He was disorientated as to time and place. He could not figure simple problems. He was unable to speak even fair French, his native tongue. He could not name the days of the week backward. He was unable to subtract 7 from 100. The thighs and lumbar region contained about 200 open sores, the result of involuntary urination and defecation. There was a large decubitus over the left trochanter. His walk was unsteady, but not ataxic. The Romberg sign was negative. There was no ataxia of the arms or legs.

The cranial nerves were normal, except for unequal Argyll Robertson pupils. There was a slight double ptosis. The fundi were normal. There was tremor of the lips and tongue. The reflexes of the biceps, triceps and radials were active and equal. The ankle and patella reflexes were absent even on reinforcement. The Babinski reflex was negative. The muscle and tendon sense was not recorded, as the patient was unable to cooperate intelligently.

The patient had been given eighteen neo-arsphenamin treatments during the previous year.

April 15, 1924, the blood and spinal fluid Wassermann reaction was three plus. The Noguchi reaction was plus. The Pandy reaction was plus. The chlorid content was 0.7. The spinal fluid cell count was 33 lymphocytes to the cubic centimeter. The colloidal gold curve was 5555543210.

Treatment and Course.—The patient was given the first course of eight weekly treatments. The spinal fluid Wassermann reaction weekly was still three plus at the end of the course. The weekly cell count was 33, 12, 10, 9, 6, 4, 6 and 4, respectively. The Noguchi and Pandy reactions were plus, plus, plus minus, plus, minus, minus, minus, minus. Without much variation the colloidal gold curve the eighth week of treatment was 5554444100.

The clinical condition during the course of treatment, however, showed spectacular improvement. After the first week no change was noted. The second week the patient felt better and stronger. His appetite was better. The orderly reported that his actions about the ward were the same. He did no work, but lay about doing nothing.

The third week he was much brighter. He showed a little interest. He spoke more coherently.

The fourth week he was much better. He did little things for himself. The decubitus and open sores were beginning to heal.

The fifth week he held conversation. His memory was better. He told about his life in France and America. He spoke good French. His speech was less slurring.

The sixth week the patient was decidedly better. He could calculate and was well orientated. He took decided interest in his person and surroundings. He asked when he could get back to work.

The seventh week all sores and the decubitus ulcers were healed.

---

5. Solomon, H. C.: Treatment of Neurosyphilis, J. A. M. A. 81: 1742 (Nov. 24) 1923.

The eighth week the patient was very much brighter. He held conversations in French, German and English without error. His memory was excellent. He was meticulous in his habits. He still had the paretic facies and euphoric expression. At this time he was put to work as a waiter in the hospital, where, during the following nine months, he did not lose a single day except those on which the treatments fell. He was a model waiter.

In November, 1924, the second course was started. The blood and spinal fluid Wassermann reaction has remained three plus. The colloidal gold curve, November 29, was 455431000; January 17, it was 5544430000. At the time of writing, April 15, the patient had gained 18 pounds (8 kg.) and appeared quite well.

The interesting points in this history include:

1. No improvement, but rather steady decline during treatment consisting of neo-arsphenamin given eighteen times and many mercurial rubs.
2. The rapid production of a remission with complete return of memory for recent and past events, and for three languages which he previously had spoken and of general interest in himself and his surroundings.
3. Increased weight and feeling of well-being.
4. Rapid healing of a decubital ulcer.
5. Return to his old employment.
6. Remission, which has lasted to date, ten months.
7. Absence of reaction at any time, except for the transitory effects of the hypertonic saline solution.

Fifteen other general paralytic patients have shown similar improvements, but not to such a spectacular degree. Ten of the fifteen are working.

Six paretic patients showed little or no improvement in either the physical or the mental spheres. These all presented marked mental defects.

The immunity reactions of the blood of all the paretic patients was unchanged after the two courses, except for one patient who presented all the signs of paresis. This patient was in a psychopathic hospital wildly maniacal, practicing self-abuse several times daily. After the fourth treatment he became quiet, and was able during the last few months to return to his technical work, from which he earned an excellent living. While his colloidal gold curve still is 4555431000, his spinal fluid Wassermann reaction is plus instead of three plus as at the beginning of the treatment. This may indicate a concomitant cerebral syphilis, which has cleared under treatment.

The cell count and globulin content of the spinal fluid improved in every one of the foregoing twenty-one cases, but we have obtained similar results when spinal drainage alone was employed in another series of cases.

Ten cases of tabes have improved clinically. The most important symptoms that were benefited were:

1. Lancinating pains (two cases). One patient was so much benefited after the fourth treatment that he refused further treatment as unnecessary. He was induced to continue treatment, however, and has not as yet complained of any subjective discomfort.
2. Urinary incontinence (one case).
3. Increased weight and general feeling of well-being (ten cases).
4. Marked incoordination of legs (two cases).
5. Trophic ulceration (one case).

In these tabetic patients the serologic examination showed marked improvement—changing in six cases from three plus to negative in eight treatments, and remaining so for six months after the treatment was discontinued. Two cases of syphilitic hemiplegia showed clinical and serologic improvement. One case especially is worthy of mention.

Case 2.—W. B., aged 36, a plasterer, was brought into the hospital in a wheel chair, unable to help himself, with severe left hemiplegia of five months' duration. Little antisyphilitic medication had been given. The Wassermann reaction was three plus in the blood and spinal fluid. The cell count was 14. The Pandy and Noguchi tests were plus. The colloidal gold curve was 5544310000. After eight treatments he was able to walk about with a cane. Arm and leg movements became stronger and more coordinated. At the end of sixteen treatments the patient walked without aid, but with a slight limp. His arm and hand movements were well performed; he had fair strength, and had returned to work. He had gained 22 pounds (10 kg.) in four and one-half months. At the conclusion of the sixteenth treatment his blood Wassermann reaction was two plus and spinal fluid Wassermann reaction minus.

One case of Erb's syphilitic paralysis, one case of general paralysis, and one case of syphilitic cerebral thrombosis showed no improvement whatever under two full courses of treatment.

One patient with tabes having no discernible optic nerve or retinal changes developed, after the third treatment, a partial amblyopia, which persisted for twenty-four hours. No further treatments were given him.

Two patients with syphilitic transverse myelitis have improved very well under this combined treatment. Not only has the spinal fluid improved, cytologically and serologically, but clinically there was much return of muscular power and voluntary control of certain viscera.

COMMENT

We have noticed a quicker and more potent response in the cases in which hypertonic salt solution has been employed. It is not a dangerous procedure and causes, as a rule, only temporary inconvenience to the patient. We believe that in the average case of neurosyphilis it can be administered with advantage.

In 350 hypertonic saline injections, combined with tryparsamide therapy and spinal drainage, there occurred not a single mishap or symptom that could cause alarm.

In the near future it will be possible to report on the arsenic content in the nerve parenchyma, following tryparsamide therapy, with and without the administration of hypertonic saline solution.

CONCLUSIONS

1. In this series of thirty-seven cases of neurosyphilis, in all of which antisyphilitic treatment had been given previously, tryparsamide therapy combined with special technic has proved in my hands an apparently distinct advance over other forms of treatment. The improvements are mostly symptomatic.
2. Tryparsamide in doses of 2.5 gm. may and does occasionally cause ocular symptoms, but no more often than do other arsenicals.
3. Tryparsamide is one of the best tolerated of the arsenicals used in the treatment of neurosyphilis.
4. Tryparsamide has little or no effect on the serologic reactions in general paralysis. It is distinctly beneficial, both clinically and serologically, in certain types of tabes.
5. Tryparsamide is a distinct addition to the therapy of neurosyphilis.

1800 Gough Street—Flood Building.

Thread Test of Actual Death.—Our exchanges are quoting Icard's new test to distinguish between apparent and actual death. He draws a thread of knitting cotton through a fold of the skin, and tests the moist thread with litmus paper. The blood serum is alkaline during life, but he found that it became acid immediately after actual dissolution.

HEALTH IN RELATION TO CITIZENSHIP IN URBAN AND IN RURAL COMMUNITIES *

JOHN A. FERRELL, M.D., Dr.P.H.
NEW YORK

Among community interests none is more important than public health, and among community liabilities none more serious than preventable sickness. The community welfare is definitely dependent on man's productivity, and this in turn is invariably influenced by the state of his health. If the community is to prosper, maintain high social, economic and intellectual standards, and otherwise meet its opportunities and responsibilities, it must include among its major activities measures for the preservation of health and the prevention of disease. This principle has been accepted by the more progressive urban communities, and is rapidly gaining acceptance in rural communities. Experience, moreover, is teaching the wisdom of employing competent professionally trained personnel, of paying reasonable compensation, and of making tenure secure when it is merited. It is teaching also that an adequate expenditure in this field, wisely administered, will yield large returns.

SCOPE OF HEALTH WORK

Practically all community programs of public health include provision for a safe supply of drinking water, the sanitary disposal of human excreta, the safeguarding of the milk supply and of other foods, and measures of demonstrated value for preventing the spread of communicable diseases. The scope of the work varies with climatic, economic, intellectual and social conditions, and with the stage to which the public health conscience has been developed. It includes—varying with communities—the teaching of healthful habits, hygienic practices, essential facts relative to nutrition, the importance of correcting the physical defects of children, etc. In the periods of maternity and infancy, preschool and school ages, adolescence and maturity, the public health worker promotes the welfare of the community by protecting health and preventing sickness. With the growing appreciation of the possibilities of preventive measures the public health organizations are being strengthened, and the private physician is yearly finding an increasing amount of his time devoted to the practice of preventive medicine and less to curative treatment.

PERSONNEL ESSENTIAL FOR CONSERVING COMMUNITY HEALTH

The training of a health officer in medicine and in public health fits him to serve all the health needs of a small community. He knows the human body in health and disease, its friends and its enemies, its needs and the environmental conditions favorable to its welfare. His long and expensive training warrants a relatively high compensation. If he undertakes to do all the work, he can serve only a small number of people. This will involve a high per capita cost. There are types of service in all well rounded public health programs that can be rendered efficiently under his supervision by less expensive employees. In some instances they can do the work even more effectively. The public health nurse, for example, by virtue of her hospital and public health training, is admirably suited for service in the home and school. She handles very well educational work, personal hygiene, infant and maternity care, and child welfare. Moreover, the lay sanitary officer—if properly trained and supervised—can render satisfactory service in inspecting the water and sewerage systems, latrines, dairies and buildings, etc. He can supervise the handling of milk, meat and other foods; the work of drainage and mosquito control, and the abatement of nuisances.

A system of records is essential in every health organization. Statistics of births and deaths, and records of diseases have to be collected and the data analyzed. Personal history records and records of homes, schools and of business and public places must be kept. The office must be attended; letters, notices and literature sent out; accounts kept, and engagements made. Numerous other office activities are necessary that can be performed as well by a trained office assistant as by the physician. Moreover, if any laboratory work is to be done, such as the examination of water, milk and smears, it can be done under supervision more economically by a technician than by a physician.

Consequently, the community health can be served most economically if a community can be established sufficiently large—in population and in wealth—to permit the employment of a unit of personnel consisting of a medical health officer, one or more public health nurses, one or more sanitary officers, an office assistant, and possibly a technician. Such an organization avoids unnecessary overhead expense and supplies dependable service on an economical scale. A competent medical health officer having administrative ability can advantageously supervise the work of several nurses and sanitary officers, and can himself perform those duties for which the less expensive personnel is not qualified.

COST OF COMMUNITY HEALTH SERVICE

Although in a few small towns and counties a health officer and a nurse constitute the personnel and render satisfactory service, it is advantageous to have as the minimum personnel a health officer, a nurse, a sanitary officer and an office assistant; and all except the office assistant should have an automobile. Such a unit under ordinary conditions can be financed with $10,000 and allow something for supplies, printing and contingencies. It will serve reasonably well a fairly compact population of from 20,000 to 25,000 inhabitants, on the assumption that the roads will permit the use of cars the year round. This means roughly a per capita cost of 50 cents, or, where property values are reasonably high, a half mill yearly tax for health purposes. In area and population the health district can be enlarged without appreciable increase in overhead expense, by increasing the number of nurses and sanitary inspectors. In this way the per capita, or millage, cost is lowered. This principle has led to a marked tendency toward the formation of larger health units involving the pooling of resources of the county with the larger towns of the county, and in some instances two or more small counties have combined their resources.

It is customary for the state and local health authorities to share the cost of the work. The basis varies with the stage of development of state and local health work, with the economic situation, and with other factors. A fixed scale in a single state is not, as a rule,

---

* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

uniformly applied. An arrangement that has given satisfactory results in many instances places 75 per cent. of the cost on the county and 25 per cent. on the state. In many cases, the county assumed only 50 per cent. of the cost in the beginning. Twenty-five per cent. was assumed for the county by an outside agency, such as the U. S. Public Health Service or the International Health Board, with the understanding that this aid was to be temporary and was to continue only through the demonstration period, and that the county each year would increase its share of the cost and permit a corresponding reduction in the outside aid. The reduction in the outside aid is made as rapidly as practicable. The International Health Board does not consider a cooperative project of this character a success until—without detriment to the progress of the work—the board has been eliminated as a contributor.

THE HANDICAP OF RURAL COMMUNITIES

The valuation of the property of a unit of population, say 20,000, in the average sparsely populated rural area is much lower than is that of a corresponding urban unit. Moreover, the rural wage scale is usually low, compared with the urban scale. The health officer or nurse, because of distance and bad roads, will consume as much time in serving one rural family as in serving several urban families. In the urban community there is telephone service, streets are paved, houses are located close together, and a minimum of time is consumed in travel.

The same economic handicaps exist in rural communities in connection with schools and highways. In matters of health, education, travel, recreation and social intercourse, the rural citizen has found himself and family subjected to more restricted facilities than is his urban neighbor. He has found that if he is assessed at the same rate as his urban neighbor, the amount raised will be insufficient to give him facilities approaching those enjoyed in the city. We know the results too well. The producer of cotton, corn, wheat, tobacco, sheep, cattle, poultry and other food supplies and raw materials has moved to town. The thinly settled community becomes more sparsely settled. The maintenance of community activities, in the fields of health and education, for example, becomes more difficult. The process has led in many sections to the virtual abandonment of large areas of productive land, and elsewhere the rural situation is a source of alarm.

DANGERS FOR THE URBAN COMMUNITIES

Our cities and towns have enjoyed rapid growth. They are the industrial centers. The majority of the immigrants coming to this country yearly go to them, and not to the farms. Those who have been producers of raw materials and consumers of manufactured products in the back country are being attracted to the cities. Urban wages are high, community activities of every character are generously financed, and although the aggregate cost is large, the relative cost to the individual is low because of the concentration of wealth and population. The trend cannot continue indefinitely without dire consequences.

We are approaching a situation which will challenge our right to claim that we are a self-contained nation. Our urban and industrial centers cannot continue to thrive without growing sources of foods and raw materials, and unless growing markets for manufactured products are found. The urban community must consider the question of whether it will permit its own areas of rural support to be abandoned and place reliance for supplies and markets on foreign countries, or whether it will aid its back country to establish and maintain community advantages sufficiently attractive to hold the present population and draw a fair share of newcomers. In peace, as in war, there can be no doubt about the wisdom of developing our own country as a whole. We should produce foods, raw materials and manufactured products in excess of our needs, and although we should be the chief consumer, the surplus should serve as the basis for foreign trade. To rely entirely on foreign countries for food and raw materials or for markets for our manufactured products would probably prove disastrous to our present urban standards of living. In obtaining markets for manufactured articles, it would mean sole dependence on competition with the cheap labor of other countries. The urban citizen should not forget that his welfare is largely dependent on his rural neighbor, and that he has a vital interest in his welfare.

DISTRIBUTION OF THE COST OF COMMUNITY ACTIVITIES OVER LARGER POPULATION GROUPS

If the prosperity of the city is dependent on the welfare of its outlying country, and no one can doubt it, it would seem to be advisable to establish and maintain a balance between urban and rural communities in economic, social, educational, health and recreational conditions. Temporary preference or advantage might very well go to the rural communities. The present unwholesome rural situation should be corrected as early as practicable.

In several states a partial solution of the problem has been found, in connection with the development of schools, roads and health work. The state has been adopted as the larger unit throughout which community facilities are equalized as far as practicable. The local political units, whether city, town or county, continue to apply the principles of local government by levying and collecting taxes on an equitable basis. The state also levies taxes for similar purposes. It does not return to each community the exact amount it pays, but distributes the funds on a plan designed to equalize facilities. In schools, for example, minimum standards as to length of term, qualifications and compensation of teachers, character of school houses, etc., are established. If, after the community has paid its assessment, its funds are insufficient to provide a school having the minimum standards, the state meets the deficit or offers contingent aid to stimulate local effort.

To what extent the principle should be applied I am unable to say. Certainly the situation merits thorough consideration. As an illustration of the problem under consideration, take the coastal counties from Virginia to Texas. With the exception of those having seaport or large towns, they are as a rule poorly served with transportation facilities. The areas of swamps and cut-over timber lands are extensive. The population is comparatively sparse, the land values are relatively low, and malaria and other diseases are so serious as to repel rather than to attract new settlers. The per capita cost of controlling the malaria mosquito and of other community services by the community alone is prohibitive. In some localities the control of malaria mosquitoes, according to estimates, would cost more than the market value of the area protected. It is claimed that it would be cheaper to move its occupants and give them land elsewhere. Does the state wish to abandon its malarious territory, or would it be willing to cede it to another state? If not, should it not aid its citizens residing there to establish conditions that will permit health and prosperity? The soil is fertile; and if the people are given healthful conditions, transportation, educational and recreational facilities, the coastal counties would be attractive to those now there and to others looking for homes. With increased density in population and more favorable economic conditions they would become self-supporting and a real asset to the state. If the nation's population is to increase as predicted by our statisticians, the reclamation of farming land as a means of supplying foods should be hastened, and living conditions on the farm should be made attractive. Of course it is appreciated that, as economic necessity requires, there will be corrective measures. It would seem advisable, however, to face the situation early and deal with it in an orderly manner, and avoid the dangerous conditions that might accompany a sudden or violent adjustment. The nation's best interest calls for an equalization in health, welfare services, and other social advantages between urban and rural communities.

SUMMARY

1. Public health is one of the major community interests.
2. Community funds wisely used for health service yield large returns.
3. The scope of the health service will vary with problems, resources and the public conscience, but in all cases should include basic activities.
4. In the interest of economy and efficiency, the political unit should be large enough to permit the employment of a well rounded unit of trained full-time personnel.
5. The cost of the service should be assumed jointly by the state, county and towns on an equitable basis.
6. The rural community is economically handicapped, so that unaided it cannot finance health and other services approaching in adequacy that of urban communities. It is being abandoned to an alarming degree.
7. The urban community cannot enjoy its present prosperity and civic advantages indefinitely unless its outlying country which furnishes foods, raw materials and markets is afforded similar advantages.
8. The urban and rural communities have a common interest in the equalization of taxation and also of facilities for health and for educational, social and economic welfare. This should be accomplished through the larger political unit, such as the state. Experience in this direction has been encouraging. The plan should be extended.

61 Broadway.

ABSTRACT OF DISCUSSION

Dr. W. S. Leathers, Nashville, Tenn.: This paper considers a number of questions, the solution of which vitally concerns the body politic. It is emphasized that the county and state represent the areas offering the units of population best adapted to the efficient development of public health organization in the country. In the creation of county departments of health, the personnel indicated is in accord with the present-day experience. Too much stress cannot be placed on the keeping of adequate and accurate records of work done and results achieved. The expenditure of funds for county or state health work should be done so that the results are clearly commensurate with the expenditure incurred. It is stated that, roughly speaking, a per capita cost of 50 cents will serve fairly well a population of 20,000. This means that the organization be efficient and unhampered by undesirable political influence. The financial plan, as stated by Dr. Ferrell, that promises the most effective cooperative arrangement between the state and local health organization, based on past experience, is one in which the state shares the expense within reasonable limitation. I have felt, as a state health officer, that the meeting of the legislature is accompanied by a great deal of unnecessary confusion in handling state revenue. There is always a scramble for money, and in the consideration of the needs of a commonwealth, I have been impressed with the lack of a careful analysis of the problems of the respective counties. As a consequence, the approporiations are not usually made in the most intelligent and effective way. It occurs to me that, in the promotion of education, health and agriculture, representing three great activities for the advancement of civilizations, some system is imperative for a more scientific appraisal of the problems of the body politic with a view of a sounder economic development. To illustrate, when a school is composed of children obviously physically defective, showing infection with malaria, eye disorders, nutritional disturbances, etc., there is often much waste in energy and money. This, with many other conditions of far reaching importance, can be changed only by a more scientific study of the comparative needs of the community, county and state.

Dr. F. J. Underwood, Jackson, Miss.: Dr. Ferrell struck the keynote in public health, full-time community public health programs. Putting into effect the principles of this paper will mean a higher type of citizenship, greater prosperity, and happiness, all brought about by the elevation of health standards through the early inculcation of proper health habits and practices as a direct result of an adequate health program for every community, rich or poor, urban and rural. Local county governments, with aid from the state, the International Health Board and the U. S. Public Health Service, can and will bring this to pass within the next ten years. The health officer should be chosen, not for his political faith, but on account of his knowledge of hygiene and sanitation, and he should be kept in office as long as he gives good service. The funds necessary to carry on this work should be raised by a fixed per capita tax, which, in an ordinary county, would be no more than 40 or 50 cents. The time will soon come when the people will be so well informed that they will not tolerate shiftless work on the part of health officer or physician. Thoughtful physicians appreciate the fact that full-time health work does not in the least interfere with the family physician's work, but will increase it. The health officer can aid him in many ways. The health officer should be to his county what the family physician is to the individual family. He should know every family, the conditions under which they live and the sanitary conditions of their homes, churches and schools. Then the rural child will have the same privileges and opportunities now enjoyed by the city child.

Prof. I. V. Hiscock, New Haven, Conn.: This problem is very near the hearts of all of us. For the last few years at Yale we have been studying health practice in small communities, and our findings emphasize many of the facts that have just been brought out. The work in small communities is largely on a part-time basis. This is expensive and does not accomplish what full-time health service has shown to be possible. In certain cases in which the full-time county idea may not be adapted to the needs of an individual locality, it may be possible for two or three communities to get together on a full-time basis, and, with the same amount of money previously expended, develop a strong public health program. Another means of securing full-time service for a small community is to have the same medical officer serve as school physician (usually now appointed by the board of education) and as health officer. This plan has been followed in Fairfield, Conn., for several years with considerable success.

Dr. Samuel W. Welch, Montgomery, Ala: Unless interest in rural problems can be aroused among the urban population of both state and nation, there is no way to get along. The fact brought out that the urban communities are absolutely dependent on the rural communities has raised a question that has not been impressed on the urban communities forcefully enough. That, to my mind, is the keynote of health work in rural districts. The centers where wealth is concentrated must reach out and help build up the less fortunate part of the state and nation. I have been twitted by my confrères from time to time for taking everything in sight from the International Health Board for Alabama. I have no apologies to make for it. New York City, with all its wealth, is reaching down into Alabama and actually giving us its money. The only thing it asks is proper accounting and proper investment in public health work. The United States Public Health Service and the International Health Board have made the state board of health of Alabama possible. They have given us money and lent us trained personnel. They have helped us to build the best health organization in the country, having anticipated in action the suggestions outlined in Dr. Ferrell's paper.

Dr. J. A. Hayne, Columbia, S. C.: The problems brought out by Dr. Ferrell have given us extreme concern. We feel in South Carolina that the county is the proper unit for government. We feel that the reason the health officers of e states passed out and new health officers took their places, was probably that these health departments had not found, or built health organizations on a rock. Probably they built on shifting sand, but in South Carolina we built on a rock. We have the finest health officers in the United States.

Dr. Samuel Stalberg, Atlantic City, N. J.: Having practiced in a city and subsequently in a rural community, the contrast of control of communicable diseases in the two communities is very striking. I was especially pleased by the attitude taken by Dr. Ferrell and the other speakers that the subject of health control in rural communities should be made a matter of public concern. Possibly some of the conditions cannot be remedied; some of them probably can, but two years ago the following incident occurred in my practice in western Pennsylvania: A child who had been under treatment for laryngeal diphtheria died after forty-eight hours' treatment. There was a public funeral, open house; there was a school right across the street. The school children came in after school to view the body, and there was a church funeral. The place was never placarded. I reported the occurrence to the Pennsylvania Board of Health, with a view of preventing future occurrences of this kind, but no satisfactory action was taken. The health officer in my particular district had 15 or 20 miles to travel from where I lived; when a case was reported it would take two or three days in winter to travel by buggy over the snow before he could come to placard the house. It seems to me that this condition could be remedied, to a certain extent at least, by plans such as Dr. Leathers has expressed, where it could be made the concern of the body politic. Also in the case of a skilled medical inspection. I happen to have done school medical inspection both in Philadelphia and in the community mentioned above. In Philadelphia the medical inspector visits the school every day and each child is given a complete physical examination. A complete physical examination is also given to the rural child, but the follow-up is practically negligible, whereas in the city it is at a high standard of perfection.

Dr. John A. Ferrell, New York: It may be worth while to call attention to the discussion of Dr. Harris' paper. It emphasizes the fact that Chicago and other cities have a very real interest in health conditions on the eastern shores of Maryland and Virginia, and these sections, in turn, are interested in the cities as markets for their products. Although I designated the state as the political unit which might serve as the basis of territory in which to equalize facilities, many aspects of health service are interstate and even international. Accordingly, in dealing with many features of health work, the nation might properly be adopted as the unit in which to equalize health facilities.

Dysentery.—Protozoal dysentery . . . can be caused by two species of protozoa only. The commoner of these is the rhizopod *Entameba histolytica*, the other, the ciliate *Balantidium coli*.—Haughwout.

THE SPINAL FLUID IN THE NEW-BORN

WITH ESPECIAL REFERENCE TO INTRACRANIAL HEMORRHAGE *

M. HINES ROBERTS, M.D.
Associate in Pediatrics, Emory University School of Medicine
ATLANTA, GA.

The study of the spinal fluid in the new-born has attracted little attention until quite recent years. Indeed, when this study was begun, I was in doubt as to the true nature of the normal spinal fluid immediately after birth, and for this reason attention has been focused with equal interest on normal as well as on pathologic specimens.

This work was carried out in the new-born service of the Grady Hospital, Emory Division, a hospital for the treatment of negro patients. It was begun primarily to study intracranial hemorrhage in the new-born, and to determine, if possible, the true significance of this condition. Coincident with these investigations, certain observations regarding the nature of the normal spinal fluid in these infants have been made and will be briefly reported.

A total of 423 babies has been studied. A lumbar puncture was done on every infant without regard to the character of labor or the condition of the child at birth. The first hundred fluids were examined by routine for their cellular content and Wassermann reaction. In the last 327 cases, the blood drawn from the longitudinal sinus has been studied for its pigment content and Wassermann reaction. This group of cases presents interesting data, not only from the standpoint of hemorrhage but also from that of Wassermann reaction, since each patient had had the test for syphilis done on the cord blood, blood from the sinus, spinal fluid and blood from the mother.

It has been my practice to perform the punctures as soon after birth as possible, the great majority being studied within the first twenty-four hours. On many of these patients a subsequent puncture was done on the day of discharge, usually about the ninth day of life, and a few punctures have been done again as late as the fourth week.

The needle employed for the lumbar puncture is 1 inch long, 20 gage, with a stilet similar to that of the larger needle used in adult work. The tissues are of such delicate structure that it is essential that the needle be as small as possible; for most babies, three-fourths inch would be sufficient length, but occasionally one is encountered requiring the entire shaft of an inch needle.

For withdrawing the blood from the longitudinal sinus, a sharp, short beveled, 20-gage needle, three-eighths inch in length, was used. The posterior angle of the fontanel in the midline is preferable for this puncture, as here the sinus is more easily located. Occasionally the sinus is transfixed in spite of all precautions; however, I have never seen any ill effects from this accident.

The routine examination of the spinal fluid for cellular elements gave data of no unusual interest. The average cell count was 6.3 per cubic millimeter, the highest being 17, which occurred in a fluid giving a 4 plus Wassermann reaction, the lowest recorded being 2. The majority of fluids showing a positive Wassermann reaction gave counts above 10, though several were as low as 3 or 4. In this connection it should be stated that rarely was there a fluid which did not contain at least an occasional red blood cell, if sufficient diligence was expended in the search.

---

* Read before the Section on Diseases of Children at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

As the observations progressed, one very striking feature of the fluids was noted. No fluid was obtained which was absolutely colorless, as is normal in the adult and older child. All showed some degree of pigmentation, varying from a pale straw to a deep yellow. In no case was there any evidence of jaundice during the first twenty-four hour period in which the primary puncture was done. No relation existed between the character of the labor or the condition of the child at birth as the result of delivery and the intensity of the pigment. The size and general physical development of the child, however, had a definite bearing on the degree of xanthochromia. All premature infants, small full term infants and twins invariably showed a marked pigmentation, while as a general rule the large full term babies gave a fluid that contained relatively little pigment. This parallels the observation frequently made that premature and small full term infants rarely if ever escape jaundice, which is usually present to an intense degree.

A discussion of the physiologic pigmentation of the fluids and tissues of the new-born is beyond the scope of this paper; however, one cannot resist the linking up of this single phenomenon with other facts already established concerning the increased pigmentation occurring in the early days of life.

Probably no subject in the entire field of pediatrics has been more widely investigated and discussed than that of icterus neonatorum. Its etiology still remains a mooted point. Several observers, conspicuous among whom are Schick,[1] Lucas,[2] and Schiff and Faerber,[3] have shown conclusively the constant presence of bilirubin in the serum of all new-born infants. Accompanying this, and seemingly a factor of etiologic importance, is the destruction of red blood cells which undoubtedly occurs during the first few days of life. Schiff and Faerber say that this indicates a physiologic preparedness for jaundice in all new-born infants, but that jaundice does not develop until some unknown factor intervenes.

In my work on the blood of these infants I have been able to confirm the presence of bilirubin in the serum, and in addition have found that it exists constantly in the spinal fluid. The supervention of jaundice is accompanied by a decided increase in this substance. Although xanthochromia is not dependent on intracranial hemorrhage, still it is undoubtedly intensified by its occurrence. The pigment persists at least until the ninth day and is cleared by the fourth week.

Blood in the spinal fluid as withdrawn may arise from two sources; namely, some pathologic process that has taken place within, or from trauma produced by the needle at the site of puncture. It is a simple matter to distinguish one of these types from the other. Blood from trauma invariably streaks the spinal fluid, while that from some previously existing pathologic condition gives a uniformly bloody fluid. Another important point of differentiation is found in the fact that blood from trauma rapidly clears, usually after the first few drops, while that due to a pathologic condition remains constantly bloody.

In this work, I have considered the presence of macroscopic blood in the spinal fluid, not resulting from puncture, as evidence of intracranial hemorrhage. Of the 423 infants examined, sixty, or 14.1 per cent., showed this condition to exist. The presence of this disease condition in such a large number of cases demands a careful analysis in order to determine its true significance. For more definite classification I have divided them into three groups, characterized as severe, moderate and slight, depending on the amount of blood present in the spinal fluid and not on any clinical evidence that might have existed. In the first group there are eighteen; in the second, twenty-four, and in the third, eighteen.

Only two of these cases could be definitely classified as true hemorrhagic disease of the new-born as evidenced by prolonged coagulation times of eleven and thirteen minutes, respectively. The remaining fifty-eight must be attributed to trauma during the course of delivery.

A study of the character of the labors reveals that there were five forceps deliveries among the hemorrhage cases, as against eight for the entire series. These forceps cases fell in the following groups: one severe, two moderate, and two slight. There were two breach deliveries, one severe and one slight; three induced labors, two severe and one moderate; one face presentation and three labors described as "long" and "hard," all severe. The remaining forty-six were normal in every respect, and divided equally between the right and the left occipito-anterior positions.

Of the sixty infants, thirty-two were delivered by primiparous and twenty-eight by multiparous women.

The administration of pituitary extract played no part, since in no case was this drug used until the third stage of labor.

Because of the extreme delicacy of the structures in the premature infant, it was thought that this condition might possibly have some bearing on the frequency of intracranial hemorrhage. Classifying all infants weighing less than 5½ pounds (2.5 kg.) in this group, I found that of the sixty hemorrhage cases fifteen, or 25 per cent., were premature, while in the whole series there were fifty-four, or 12.7 per cent.; twice as many in the former group and evidently a definitely predisposing factor.

The relation that syphilis might bear to this condition was studied. Thirty-two babies, or 7.5 per cent. of the entire series, gave a positive Wassermann reaction from cord blood, sinus blood or spinal fluid, and in a few instances from all three tests; while five, or 8.3 per cent. of the infants in the hemorrhage group, were positive—apparently too slight a difference to be a factor of great etiologic importance. Of interest in this connection is the relative delicacy of the Wassermann reaction as performed on cord blood, sinus blood and spinal fluid, respectively. The figures are: twenty-one positive reactions from the cord blood; thirteen from the sinus blood, and only five from the spinal fluid.

Thus far the condition has been discussed entirely from the standpoint of laboratory diagnosis. Clinically, twenty-six of these babies showed evidence at birth of some disturbance, characterized in the main by delay in the establishment of respiration, cyanosis, weak cry [illegible]
e severity of these symptoms

---

[1] Schick, Béla: Jaundice in the New-Born, Ztschr. f. Kinderh. **27**: 231 (Jan.) 1921.

[2] Lucas, W. P., et al.: Blood Studies in the New-Born, Am. J. Dis. Child. **22**: 525 (Dec.) 1921.

[3] Schiff, E., and Faerber, E.: Jaundice in New-Born, Jahrb. f. Kinderh. **97**: 245-258 (March) 192

varying directly in practically every case with the degree of hemorrhage into the spinal fluid. The remaining thirty-four infants were apparently perfectly normal, and without lumbar puncture intracranial hemorrhage would never have been suspected.

On physical examination, few of these infants exhibited findings of any importance other than cyanosis, irregular respiration, extreme weakness, occasional muscular twitchings and stupor. In those classified as severe, it was fairly common to note a bulging fontanel, but by no means a constant characteristic. Indeed, only eight patients presented this condition, whereas on four babies showing no evidence of hemorrhage in the spinal fluid a tense fontanel was noted.

No paralysis of either the spastic or the flaccid type was noted. Examination of the reflexes was of little aid in reaching a diagnosis. It has been my experience that so early in life they are extremely variable even in the normal infant. Marked exaggeration of the knee jerks was not observed, but the inability to obtain this reflex was not uncommon.

In a condition of this nature it will probably appear premature to draw any conclusions as to the ultimate prognosis in these babies; however, the follow-up work has been fairly comprehensive and gives data of interest.

Of the sixty infants showing evidence of hemorrhage, it has been possible to follow fifty-four. Of this number twelve are dead, eight of whom died in the hospital within, at the most, twelve days of their birth, the death in each case being undoubtedly due to intracranial hemorrhage, as proved at necropsy in four cases.

Of the four deaths that occurred at home, one was due to pertussis, according to the mother's statement; another to bronchopneumonia, both infants apparently developing normally until the infections occurred. The two remaining deaths, which occurred at the ages of 5 weeks and 3 months, respectively, must have been directly the result of hemorrhage—one infant had never cried or nursed well; the other died in convulsions.

The forty-two children that are known to be alive today have been followed for periods varying from two to nineteen months. It is striking to note, that so far as I am able to determine from the physical and mental development of these children, only two show any disturbance that might be attributed to cerebral hemorrhage, and both of these were classified as severe cases at the time of puncture. Both are very small, weak babies with definitely retarded development. One at 3 months has a spastic paralysis of the lower extremities with moderately exaggerated reflexes, and in addition gives a strongly positive Wassermann reaction, which confuses the picture. The other at the same age is extremely weak, moves the legs with difficulty, and notices very little. The latter case might easily be attributed to prematurity.

The subsequent development of these children will be watched with the keenest interest. At present it is difficult to picture the typical syndrome of Little's disease appearing later in life. On the other hand, is it possible that this condition in the new-born, which in the majority of cases passes unnoticed, may explain some of the baffling nervous and mental conditions arising in childhood and even adult life? Might not epilepsy itself possess an organic basis resulting from such a pathologic condition at birth?

SUMMARY

1. A study of the spinal fluid of 423 new-born negroes was made.

2. Each of these fluids contained a yellow pigment, bilirubin, which persisted at least until the ninth day, and was intensified if jaundice occurred. It cleared by the fourth week.

3. The intensity of pigmentation was closely related to the physical development of the infant.

4. Sixty cases, or 14.1 per cent., showed the presence of intracranial hemorrhage, two due to hemorrhagic disease, and fifty-eight to trauma.

5. Abnormal labors or operative procedures tend to increase the incidence of intracranial hemorrhage.

6. Prematurity is a definite etiologic factor.

7. Only twenty-six of the sixty cases presented symptoms attributable to intracranial hemorrhage.

8. Fifty-four of the sixty children have been followed; twelve are dead, ten because of hemorrhage, two as the result of some intercurrent infection. Forty-two children are known to be alive, only two of whom show symptoms due to hemorrhage. The remaining forty seem perfectly normal.

CONCLUSIONS

1. Xanthochromia of the spinal fluid in new-born infants is a physiologic condition, and is in no way dependent on the existence of hemorrhage or other pathologic condition of the nervous system.

2. Intracranial hemorrhage in the new-born is a common occurrence even in normal labor, and only in severe cases does it exhibit symptoms.

3. The death rate is high. Death occurs very shortly after birth in those cases terminating fatally.

4. The possibility of later and permanent disability resulting from intracranial hemorrhage seems remote.

20 Ponce de Leon Avenue.

ABSTRACT OF DISCUSSION

Dr. John Lovett Morse, Boston: I want to congratulate Dr. Roberts on his ability to get into the spinal canal in the new-born. I find it very difficult. The points that he brought out to determine whether blood in the spinal fluid is due to trauma or comes from above are very important. His findings corroborate what I have always believed; namely, that there must be more or less capillary hemorrhage in the meninges and brain in every new-born baby. It does not seem possible that with all the venous congestion there should not be some capillary hemorrhage. If the spinal fluid is studied carefully, evidences of such hemorrhages will often be found. It seems to me probable that there may be capillary bleeding in the meninges of the cord as well. One point, in this connection, which was not brought out in the discussion of cerebral hemorrhage of the new-born, is that hemorrhages in babies are from the pia and arachnoid, not from the dura, as in adults. The dura is adherent to the bone in babies. Hemorrhages are, therefore, subdural, not epidural. Another point which should be emphasized is that cerebral hemorrhage in the new-born does not, by any means, indicate that there has been poor obstetrics. It means that there has been intense cerebral venous congestion. Dr. Roberts' figures seem to me to show what I have believed for a long time to be the case; namely, that in the vast majority of instances these small capillary oozings are absorbed and do not cause any symptoms either at the time or later. Another point to be remembered is that a great many of the paralyses that are seen in children are not due to hemorrhage into the brain, but to injury to the spinal cord. Many children are supposed to have Little's disease when the injury is entirely in the spinal cord.

Dr. S. J. Wilson, Brooklyn: We found in most of our cases normal bleeding and coagulation time, yet lumbar puncture showed hemorrhagic fluid. These tests, therefore, as performed by individual laboratory men, are not reliable, no matter what technic is used. I do not think the author mentioned *the fact that* the absence of blood from the spinal fluid does not exclude hemorrhage. We had four cases of clear fluid, yet microscopic sections of the medulla showed capillary hemorrhage. That will support the view of Dr. Morse that there are capillary hemorrhages in the meninges and in the cerebral tissue without any blood in the spinal fluid. The hemorrhages in these children are usually subdural. When the child, however, has cephalohematoma, there may be epidural hemorrhages. We had three cases of cephalohematoma with injury to the bone, and there was trickling of blood epidurally and finally pressure and death.

Dr. E. C. Fleischner, San Francisco: I should like Dr. Roberts to elaborate somewhat on the difference in the positive Wassermann reaction in the blood and spinal fluid of the babies and that found in the blood of the mothers. Furthermore, he said that, in some of the babies, lumbar puncture was done at birth and at 4 weeks. Did the Wassermann reactions correspond at the *different intervals? Did the clinical* findings suggest that he could draw conclusions comparable with the Wassermann results? I should like to congratulate Dr. Roberts on the way he has worked out this subject. His conclusions represent a tremendous lot of study, industry and hard work.

Dr. M. H. Roberts, Atlanta, Ga.: Since beginning this work I have become convinced that blood in the spinal fluid produced by the needle can be distinguished from that due to some pathologic condition of the central nervous system. A bloody fluid clearing after the first few drops must be attributed to the trauma of puncture, whereas one that remains uniformly bloody is due to a pathologic condition. In answering Dr. Fleischner: The data on the Wassermann reaction were too bulky to include in this paper. Three hundred and twenty-seven cases of this series have been carefully worked out; fifty-one mothers, or 14.5 per cent., gave a positive reaction; thirty-seven were delivered of babies with negative Wassermann reactions on spinal fluid, cord blood and blood from the sinus. Twenty-four of this last group had received antisyphilitic treatment prior to delivery, and some of these as late as the eighth month of pregnancy. Ten of the thirty-seven infants have been studied in the outpatient department. Of this number, one shows definite evidence of syphilis clinically and another gives a positive Wassermann reaction at the age of 5 weeks, proving that although clinically and serologically normal at birth, a latent infection may exist. A study of the fifty-one mothers showing a positive Wassermann reaction gives interesting information as to the efficacy of prenatal antisyphilitic treatment. Of the thirty-seven mothers giving birth to babies with negative tests, twenty-four, or 65 per cent., had received treatment, while of the remaining fourteen mothers delivered of infants having a positive Wassermann reaction, seven, or 50 per cent., had received treatment. The treatment in all cases was instituted very late in pregnancy. Eleven babies with positive Wassermann reactions were born of mothers with negative tests and without evidence of syphilis clinically. Certainly the tests should be repeated on these patients before the institution of antisyphilitic treatment, unless the clinical evidence leaves no doubt as to diagnosis. I have employed spinal drainage in the treatment of intracranial hemorrhage. I am not certain of the real benefit resulting from this therapy, and have no figures for comparison since all cases have been treated in a similar manner.

Playing on Floor as Cause of Infection with Tuberculosis in Children.—Children playing on floors or pavements soiled with tuberculous sputum may be infected by getting the germs on their hands, or clothing, and into their mouths, or by inhaling them in dust, and also by contact with infected objects (toys, pets, toilet articles, door knobs, etc.). A patient with active disease, therefore, should stay away from children. He should not live in the same house with children if it can be avoided.—F. C. Smith, *Public Health Rep.* 38:777 (April 13) 1923.

UNDERESTIMATION OF GOOD RESULTS IN MENTAL DISEASES

FACTS IN ONE THOUSAND AND TWENTY-FOUR CASES *

EARL D. BOND, M.D.
PHILADELPHIA

The prognosis for the general run of patients attacked by mental diseases has never been established. The popular impression is that such patients go from bad to worse, and that when they apparently recover they soon break down again. I hope that physicians who share this gloomy view will be encouraged by the facts set forth below.

Beginning March 1, 1924, the careers of 1,054 consecutive patients admitted to the department for mental and nervous diseases of the Pennsylvania Hospital were studied for a period of from five to ten years. The patients had the more severe mental diseases, as may be judged from the diagnoses: senile and arteriosclerotic conditions, 13 per cent.; manic-depressive psychoses, 20 per cent.; dementia praecox, 16 per cent.; general paralysis, 5 per cent.; psychoses associated with somatic diseases, 11 per cent.; involution melancholia, 7 per cent.; psychoneuroses, 8 per cent.; unclassed psychoses, 10 per cent.; paranoid conditions, 7 per cent.; psychopaths, 3 per cent. The patients usually entered after many opportunities for early treatment had been wasted by the family's inclination to delay.

Of 1,054 consecutive admissions, thirty were lost. Of the 1,024 patients that could be followed over five years, *274 recovered and stayed well*; 159 improved greatly; 331 died, and 260 remained stationery or grew worse. The percentages are almost the same as these figures: 26.7 per cent. recovered; 14.5 per cent. improved; 32.3 per cent. died, and 25.5 per cent. did not improve.

Now I want to follow these groups with only one point in mind, the prevailing tendency to underestimate good results.

RECOVERIES

In the first place, among those who recovered are some patients who have reached a higher level of health than they had been able to reach before the illness. Here are examples:

(*a*) At 34 years of age, for six months before admission, a patient had built up delusions of persecution and reference with desperate suicidal and hemocidal attempts. At the hospital she had auditory hallucinosis and somatic delusions. After transfer to another hospital she was taken ill with typhoid. Then her mother took her home and shut her up, dirty and resistive, in an attic room. By this time her husband had become interested in another woman. On being told of this the patient at once said, "I will go to him." For four years to date of the last report she has been "as well as ever except that she shows better judgment and is more amiable."

(*b*) A woman was doing mediocre work as a shoe sales clerk. For five months before coming to the hospital she was reticent and uninterested in anything except in the ideas that her body was strong and icy. At the hospital she thought the emanations from her body made others sick: she speculated on how she could hold "the dream life." On recovery she took up college work, graduated from a fine school of dietetics, and has been for some years chief *dietitian* in a large general hospital.

---

* From the Department of Mental and Nervous Diseases, Pennsylvania Hospital.

* Read before the Section on Nervous and Mental Diseases at the Seventy-Sixth Annual Session of the American Medical Assoc
Atlantic City, N. J., May, 1925.

(*c*) One patient had made a great gain in efficiency and poise over previous condition.

(*d*) A man has been promoted to the headmastership of a large school, a position which before his illness seemed out of his reach.

(*e*) A recovered patient has graduated in medicine and in a postgraduate course in ophthalmology.

(*f*) A woman is reported "in every way better than ever before."

(*g*) One "shows better judgment and disposition than she ever did before she became sick."

(*h*) Another has become increasingly efficient in her work for a big corporation and has had rapid promotions.

In the second place among the recoveries are paranoid conditions.

(*a*) A woman, aged 43, developed the delusion that counterfeiters were at work in a bedroom in a hotel at which she was staying, and this was soon elaborated into the conviction that a powerful organization was planning to destroy her. Her delusions were supported by visual and auditory hallucinations. Full recovery with full insight has lasted five years to date.

(*b*) A woman, aged 38, began to think that there was poison in the food, that her body was being injected, that dictaphones were put in the room by people whose footsteps she heard, and that the Catholics were "after her." Full recovery has been maintained nine years.

In the third place, several patients with severe catalepsy made good, well sustained recoveries.

(*a*) A man, aged 31, who used urine and sputum in symbolic ways became cataleptic for months and then negativistic; he especially struggled against tube feeding, and then became impulsive and full of mannerisms. He made a good recovery and has held a railroad position for the last five years.[1]

In the fourth place, patients advanced in years recovered:

(*a*) A woman, aged 68 on admission, recovered and has lived for six years "more amenable to the requirements of her surroundings than ever before."

IMPROVED

There is little to say about the improved group except to call attention to the fact that some patients are placed here because their return toward health has been partial, and others, because they have fully recovered only to relapse. Even in the case of a second or third return to normal, a patient with a relapse in the five or ten years has been ruled out of the recoveries. With a few exceptions this group is composed of hard workers, and the improvement has reached the state of self-support.

(*a*) One patient is "not altogether as he should be but works every day."

(*b*) The second patient "for several years has been able to work on his farm except for short attacks during which he has to go to a hospital."

(*c*) His judgment is to be relied on between attacks and he carries on his business successfully.

(*d*) Another patient is eccentric but a hard worker.

(*e*) An extremely capable woman is still subject to petit mal attacks.

DEATHS

Following any group of a thousand persons, many of them in the later decades, over a space of five or ten years would bring to light a considerable mortality. As the period of follow-up work ran through 1918, there are a number of deaths from influenza. Many of the causes of death were not related to the psychoses in any way. On the other hand, all the patients with senile and arteriosclerotic psychoses died during the follow-up period.

THE UNIMPROVED

The sad group of the unimproved is filling up our state hospitals. It is composed of dementia praecox cases, with a fairly large number of manic-depressive cases in prolonged or frequent attacks.

CONCLUSIONS

We have almost no information as to what happens to the patients who come consecutively to the doors of any surgical, medical or special hospital, or to the offices of general practitioners or specialists. We have plenty of statistics about patients with this or that disease, but not about the general run of patients. I imagine that the surgeon or internist would be satisfied with a return to full function in 25 per cent. of his consecutive cases, judgment being made from five to ten years after the beginning of treatment.

Everything in psychiatry today points to the prospect of increasing the recovery percentage by getting at mental diseases early. If by getting at them late, consecutive cases may be expected to show full return to function in 25 per cent. and amelioration in 15 per cent. more, the general practitioner first, and the psychiatrist later, is justified in taking as hopeful an attitude as is taken for surgical problems.

While no psychiatrist would feel surprised at some of the individual recoveries followed and reported, such good results warn the physician facing combinations of symptoms that are traditionally associated with dementia praecox not to give the group prognosis for any particular case.

ABSTRACT OF DISCUSSION

Dr. Alfred Gordon, Philadelphia: Dr. Bond tries to arrive at conclusions on a very sane basis, very carefully and very conservatively. The warning he gave is important. How frequently we are asked to commit a patient who presents mental disturbances because nothing can be done for him. Of course, we do not always commit the patient. As to prognosis, despite the advances we have made, despite the statistics Dr. Bond presented, there is still prejudice in the minds of lay people and maybe in the minds of some physicians against mental disorders. Mental disorder is considered right from the beginning as incurable. Dr. Bond presented eloquent statistics in that respect. I can fully corroborate every word he said. How frequently we have cases labeled dementia praecox, which turn out to be toxic cases, simulating some of the manifestations of dementia praecox! How frequently we find catatonic attitudes and stereotyped movements in individuals who suffer from a toxic state, simulating, it is true, catatonia praecox! If we follow the cases for a sufficiently long time, bearing in mind the possibility of error and the possibilities of toxicity, they turn out well.

You may say dementia praecox patients recover, but I do not know about that. It is a grave question with me whether patients with true dementia praecox ever recover; so that, looking at the practical side of the problem, I feel, as does Dr. Bond, that recovery and good prognosis are very frequently underestimated because the diagnosis is made hastily and hurriedly. We at the present time in psychiatry are meeting with results that we have never had before, because we pay more attention to prolonged observation and prolonged treatment.

Dr. Tom A. Williams, Washington, D. C.: I think we are too modest in our expressions, and there is still too much prevalent the idea that neurology is a kind of amusement and not very useful to the public. When anything useful is done by neurologists, we often find that some other specialist takes up the work and goes on with it, and leaves us to do the pioneering. My own experience absolutely agrees with what Dr. Bond said about the relatively good prognosis of psychiatric cases of certain kinds, if properly dealt with. I should like Dr. Bond to make a further analysis of his statistics and say what part is played in the respective recoveries by the detoxicating treatment, the physical measures which are used on the patients, and the psychologic readjustments which he and his assistants make of the patients' manner of living after they leave the institution. Many of the patients whose histories he read in his first set of statistics suggested a toxi-infectious state, and there is no reason necessarily to anticipate the recrudescence of a state of that kind, unless the patient is again placed in the condition which creates intoxication. Therefore, the patient will spontaneously get well through the skilful management in the institution. But there is another factor possibly in some of the cases which I think must be the case, namely: the reeducative factor. It would be very useful to all of us to know, then, in what proportion reeducation was the key to the good prognosis, and in what proportion detoxication was the key to the prognosis.

---

[1] Further examples of catatonic and paranoid conditions are given by Strecker, E. A., and Willey, G. F.: An Analysis of Recoverable Dementia Praecox Reactions, Am. J. Psychiat. 3: 593 (April) 1924.

DR. EARL D. BOND, Philadelphia: Eleven per cent. of these patients had infections and toxemias that were evident and that were dealt with in every surgical and medical way we knew how. That 11 per cent. did well. Of the patients who seemed to do better after their illness than before, many seemed to do better because of the reeducation which Dr. Williams has spoken of, because they had managed to get a different way of looking at their symptoms than they had before. A great many of these patients, of course, went on from our hospital to get well in other hospitals, and some of them undoubtedly got well in spite of anything we or the other hospitals could do.

HEMANGIOMAS OF THE KNEE JOINT

JOHN T. O'FERRALL, M.D.
NEW ORLEANS

The occurrence of hemangiomas is rare, judging from the scarcity of references in the current literature and textbooks. Recent clinical experience with this condition occurring in the knee joint, and the fact that it heretofore has not been mentioned in reference to other "internal derangements" of the knee joint, prompt me to call attention to it. It is important as a distinct entity of marked seriousness and also from the standpoint of differential diagnosis.

A recent complete and painstaking review of the literature of hemangiomas occurring in all parts of the body with particular reference to those developing in the nervous system, by Stewart and Bettin,[1] will be referred to frequently, and the value of its conclusions acknowledged.

Hemangiomas are in no way similar to varicose vessels or aneurysms, but are a neoplastic overgrowth of blood vascular tissue. They are composed of irregular spaces lined with epithelium, but the outer vessel wall is generally absent. There appears to be a proliferation of the endothelial intima. Blood cells are seen pushing their way between the lines of endothelial cells, in which way the extension of the tumor takes place. Considerable amounts of connective tissue, for the most part rather loose and containing in its meshes blood vessels, are found present.

As stated by Stewart and Bettin, these tumors are classified, both pathologically and clinically, according to the size of the spaces, as capillary and cavernous. "Besides these there is the unusual form of plexiform or racemose angioma which is made up of true vessels, but in which there reside neoplastic characteristics."

It is generally believed that these growths are congenital but do not manifest themselves until later in life. In my limited experience, trauma is generally the cause of the stimulation to renewed growth and the manifestation of clinical symptoms. This fact is no doubt influenced by the distribution or location of the tumor in the lower extremities, which are more exposed to trauma. Of 1,674 cases of hemangiomas compiled from the British and German literature, and reviewed by Stewart and Bettin, *only 9 per cent.* were found in the lower extremities. It seems that twice as many females as males are affected with these tumors.

DIAGNOSIS

The diagnosis of blood vessel tumors, and especially hemangiomas, is difficult in any part of the body. But those occurring within joint cavities have heretofore presented themselves in such a way that the diagnosis has been completely missed. Generally, when seen, the tumor has advanced to considerable size and is producing definite clinical symptoms. There may or may not be synovitis with excess fluid, and in some cases this condition comes and goes. A mass can be seen and felt on one or the other side of the patella, and appears much like a "joint mouse" attached by a pedicle. On palpation, however, the mass is found only slightly movable and much softer in consistency than a mass of cartilage or bone. Pulsation is not always present, but pain of considerable degree is experienced on slight pressure. All motions of the knee joint are quite normal or only slightly restricted. Moderate atrophy of disuse of the thigh and calf generally exists. The patient complains of pain of moderate severity on use of the joint and especially after periods of rest. A history of trauma in the past is referred to as the origin of the trouble. No history of a sensation of slipping, snapping or locking of the knee joint is related. There is no redness or discoloration of the skin over or around the tumor mass. In the cavernous types of angiomas, the size of the tumor is said to be reduced on elevation of the affected extremity. This has not been found to be the case in my experience.

The differential diagnosis is exceedingly difficult and must be made by exclusion from displaced semilunar cartilages with extreme displacement, loose bodies in the knee joint whether of cartilage, bone or foreign material, lipoma aborescens, or gumma. As is the case in nearly all of the foregoing conditions, roentgen-ray examination is entirely negative. The cardinal points for diagnosis appear to be: (*a*) history of existence of questionable tumor since early life or associated with more or less recent trauma; (*b*) unusual sensitiveness of a mass in the joint, which is soft and slightly movable; (*c*) reduction in size of the mass on elevation of the extremity; (*d*) pain of moderate degree associated with slight limitation of joint motion, and (*e*) negative roentgen-ray examination. Unless the presence of hemangioma can be definitely ruled out in considering internal derangements of the knee joint, operative procedures should be deferred. This warning is sounded because of the difficulties that may arise as the result of operative intervention. In the case reported by Osgood,[2] the preoperative diagnoses were (1) lipoma aborescens; (2) a tumor; (3) tuberculous pannus, and (4) solitary gumma. When the joint was opened a hemangioma was found, and the postoperative results were excellent. The foregoing experience in preoperative diagnosis as compared with the operative findings illustrates very definitely the need for careful study of knee joint derangements, and more consideration of the subject under discussion in relation to them. In one of the cases reported by Haas and reviewed by Stewart and Bettin, recurrence took place and amputation was necessary.

---

[1] Stewart, S. F., and Bettin, M. E.: Surg., Gynec. & Obst. **39**: 307 (Sept.) 1924.

[2] Osgood, R. B.: S. Clin. N. Am. **1**: 681 (June) 1921.

PROGNOSIS

The prognosis, in suspected or proved cases of angioma, should be very guarded. In those cases producing clinical symptoms, metastasis may occur to other parts of the body, or extension to an unlimited and disastrous extent may take place.

TREATMENT

The treatment of this condition if recognized early in life has received study and consideration from many competent men, and numerous methods have been suggested. When these tumors are found in the knee joint, the problem of treatment is an entirely different one. The patient does not apply for treatment until clinical symptoms are present, at which time the growth is extensive. If positive diagnosis can be made, conservatism should be practiced, deep therapy being used, roentgen-ray and radium treatments in connection with frequent observation of progress or arrest of symptoms. Moderate fixation of the joint is indicated. When it is found that progress continues or symptoms persist, after adequate roentgen-ray and radium treatments have been given, then operative intervention is justified. The patient's family should be advised of the nature of the condition and prepared for extensive resection with possible loss of joint function. Excision of the mass must be complete, and especial attention given to hemostasis, as secondary hemorrhage is a serious and possible postoperative complication. As soon as the danger of secondary hemorrhage has passed, early motion should be begun. Further treatment with roentgen ray and radium may be of assistance in preventing metastasis or recurrence of the growth.

REPORT OF CASES

Three cases are reported here, illustrating the difficulty of diagnosis and the extension that may take place in the formation of the tumor. The preoperative diagnosis in two instances was incorrect.

Case 1.—R. B., a white man, aged 19, whose family and past history contains no significant facts, seen, Jan. 10, 1924, thought that he fell during the summer of 1918, while at camp, and slightly injured the right knee. During his stay at camp, he noticed that the knee gave him some pain, but not enough to interfere with athletics. Ever since then he had suffered pain of varying degree, associated with slight swelling of the knee joint. Beginning use of the joint after periods of rest produced a great deal of pain. Continued exercise gave some relief, but was followed again by increased pain. He had noticed a localized swelling over the outer side of the knee cap for a couple of years. This mass was very tender to the slightest pressure, and if he knocked his knee only slightly, the pain was so severe that he could scarcely walk. No redness of the skin or locking of the joint had ever occurred. He stated that very slight interference with the motion of the joint had taken place. One year before he had consulted an orthopedic surgeon, who made a diagnosis of synovitis, and aspiration of the knee joint was done. A dry tap was the result. The patient stated that no further treatment had been applied except that he had worn an elastic knee cap, no relief being obtained.

General examination of the patient revealed nothing of importance. Local examination of the knee joint showed a mass over the external aspect lying along the edge of the patella, about the size and shape of the terminal phalanx of an adult thumb. This mass felt like a fibrous loose body in the joint. It was not movable and appeared to be attached by a pedicle or to the underlying structures. It was very tender but not red. There was three-eighths inch (1 cm.) hypertrophy of the knee joint measuring over the center of the patella; also 1 inch (2.5 cm.) atrophy of the right thigh, and one-fourth inch (0.6 cm.) atrophy of the right calf. Full extension of the knee was painless, but flexion was limited to within 15 degrees of normal. On flexion of the knee, the mass appeared to descend to a slight extent near the head of the tibia. Elevation of the extremity did not reduce the size of the tumor. A roentgen-ray examination made one year before, and one at this examination, proved to be entirely negative.

A preoperative diagnosis of loose body in the knee joint, probably of cartilage, was made and operation advised.

The patient was admitted to the hospital, and under gas anesthesia the knee joint was opened through a 4-inch (10 cm.) incision, made over the external aspect of the joint and to the outer side of the mass. The capsule was found very much thickened, and only a small amount of synovial fluid escaped when the joint was opened. Inspection of the joint revealed that the entire anterior cavity was filled with an irregular mass, arising from the inner surface of the capsule adjacent to the patella, and extending into the synovial tissues on the upper surface of the head of the tibia. It was with some difficulty that the entire mass, the size of the cupped palm of the hand, was removed. It was necessary to remove a good portion of the capsule which was the base of the mass. The cavity was washed out with ether and the wound closed, accurate closure being impossible because of the removal of the capsule. A circular plaster splint was applied and immediately bivalved. The patient had no immediate postoperative complications and was discharged to his home, the fourth day, free of pain. The following day, however, some pain was experienced, and the joint was inspected. It was found considerably distended and gave evidence of being full of blood. A few skin sutures were removed, and several clots were discharged. The following day a large clot was discharged, and a profuse hemorrhage occurred. The patient was immediately returned to the hospital, and the wound widely opened. Several bleeding points were found where the mass was dissected away from the head of the tibia, and because of the friable condition of the tissues, the bleeding was stopped after many attempts at ligation. The cavity was washed out with hot mercuric chlorid solution, 1:10,000, and the skin closed. The wound did not close by first intention, but no infection of the joint took place. Diathermy and active motion were begun after a week. The patient complained considerably of pain for some time after the operation, and had some elevation of temperature. All joint cultures were negative. His progress was satisfactory, until he hit the affected knee with a golf club, while still on crutches, producing a return of pain and prolonged convalescence.

At the present time, sixteen months after operation, the patient has 25 degrees of permanent flexion, and can flex the knee to 50 degrees. He walks with a limp, but there is no evidence of a recurrence of the growth. The patient has been very noncooperative, which in a measure accounts for the unfavorable functional result.

The tumor mass was sufficiently typical to make a diagnosis at the time of operation, which was confirmed by the following pathologic report: "Specimen made up of connective tissue, which is for the most part rather loose and containing in its meshes blood vessels. Other areas show cavernous type of hemangioma."

Case 2.—Mrs. R. L. C., white, aged 20, whose family and past history is not significant, was seen, Aug. 20, 1923, by Dr. G. A. Caldwell of Shreveport, La., to whom I am indebted for the history. When about 2 years old, she fell from a chair, striking the right knee. It became swollen and tender, and she wore a bandage for several years. She was not confined to bed. At the age of 8, she was struck on the outer side of the right knee with a baseball bat, and for several months following was unable to walk. She was confined to her bed for a number of weeks, and used crutches for some time. She apparently recovered full function of the knee, but the swelling and soreness never entirely disappeared. It varied in severity from very slight to very severe.

Four years before examination, while the patient was walking, the knee suddenly locked, and she fell. She had great pain and was confined to her bed. Swelling was greatly increased. She was treated by the application of a plaster splint, and was disabled for several months. One year later she had a similar experience of shorter duration. One year before examination, without apparent cause, the pain and swelling increased until she was entirely disabled. She requested her physician to apply another plaster splint, which she wore, using crutches for five months. She had improved sufficiently to walk unaided, but with a marked limp and great discomfort.

General examination of the patient revealed nothing of importance. Local examination of the right knee revealed that it could be fully extended, but was painful in this position. Flexion was limited to 90 degrees by muscle spasm. There was no redness of the skin. The patella was freely movable. No excess fluid was found in the joint. There was a distinct mass over the external aspect of the knee joint along the margin of the patella, and extending to the lower third of the thigh. This mass was doughy, resistant and markedly tender. A roentgen-ray examination was entirely negative. A Wassermann examination was negative. The blood picture was normal.

The provisional diagnosis was: (1) synovial tuberculosis, and (2) loose cartilage, foreign body.

Exploratory arthrotomy was done, August 26. An incision was made along the outer side of the patella. The capsule was slightly thickened. The joint fluid was normal. The joint surface was swollen and glistening. The semilunar cartilages were normal. At the upper end of the wound, involving the joint reflections and under the quadriceps tendon, was a mass of interlacing, thin walled veins, varying in diameter from that of a pin to a quarter of an inch. A small section was removed, and the edges were carefully sutured. A molded plaster splint was applied after the usual closure of the wound. Postoperative pain was severe, and persisted despite fixation.

September 23, a second operation was done through a longer incision, and the mass was found to be quite large, extending from the level of the epiphyseal line, on the outer and anterior surfaces of the femur, to the junction of the lower and middle thirds. The mass was made up of friable veins, closely adherent to the periosteum and the surface of the quadriceps muscle. It was not possible to get completely around the mass, and at such points it was divided between layers of mattress sutures. On removal of the tourniquet a great deal of bleeding took place, which was easily controlled by pressure and hot applications. The wound was closed in the usual way, and the leg kept elevated. Ten days later a circular plaster splint was applied, and the patient was sent home. Considerable postoperative pain occurred. At the end of the fourth week, massage and motion were begun. Thirty-five degrees of painless motion developed immediately. This motion progressively increased. When examined in July, 1924, the joint appeared quite normal except for some tenderness at the midportion of the scar. She had pain of moderate degree on excessive use of the joint, but there was no evidence of recurrence of the growth. Full extension was possible, and flexion was free to 105 degrees.

Case 3.—Miss D. L., aged 24, with a negative family and past history, except for frequent colds and a tonsillectomy one year before examination, was seen, May 7, 1923, by Dr. R. B. Osgood of Boston, who kindly supplied me with the facts. Nineteen years before, she fell with the right knee bent sharply backward on the thigh. This was when she was 5 years old. She was said not to have been able to walk on it immediately. Cold applications were applied. No physician was seen, and in a few days she was thought to be well. She had been told by her family and remembered herself, however, that ever since this time she had had a little limping, and whenever she ran or tried to play games she tended to skip on the knee rather than to bear full weight. Three years before examination she began to have more pain from no known cause, and any little knock on this knee hurt much more than on the other knee. There was a little puffiness in this knee noticed for three years, chiefly on the inner side, and she had not been able to straighten it completely or to bend it back quite as far as the other. About three months before, the knee became more acute, with swelling and sharp pain from no known cause except slight trauma. It was now better, but continued swollen.

The patient was well developed and very healthy looking. The examination was entirely negative except for the right leg. There was 3 cm. atrophy of the calf and 2 cm. atrophy of the thigh, 20 cm. above the patella. The legs were the same length, the right being if anything a fraction of a centimeter longer than the left. There was permanent flexion of 10 degrees and possible flexion to 100 degrees. The right knee measured 32.5, 35, 36.5; the left knee, 35, 37, 39 cm. There was no free fluid in the knee. There was marked puffiness amounting to swelling beneath the patella and the patellar tendon, and some thickening to be felt in the upper culdesac. The patella was very easily movable. There was no unusual mobility that could be made out in the lateral or anteroposterior direction in either flexion or extension. On attempt at lateral mobility in extension, one loud click was heard, as if an adhesion had given way. There was slight sensitiveness to passive attempts at rotation of the leg in the extended position. The knee was extremely tender to palpation over the area of swelling below the patella, and to a slight degree in the upper culdesac. The feet showed fairly good weight bearing lines. There was no disturbance of motion except as noted above. The roentgenograms showed very little if any change in bone contour on the two sides, the articular surfaces appearing as smooth and regular on the right as on the left, with possibly a little sharper backward curve of the upper anterior portion of the tibia at the joint line on the right than on the left. There was perhaps a little less free cartilaginous space between the femur and the tibia on the right, possibly resulting from the slight permanent flexion. The marked difference in the two roentgenograms was that in the right beneath the patella tendon, but not filling the entire infrapatellar space, was a very dense shadow as of soft part proliferation, which seemed if anything a little more dense in the 1923 plates than in the 1922 plates. There was also a shadow of soft part increase in density in the upper culdesac on the right.

A diagnosis was made of proliferation of the synovial membrane, possibly lipomatous degeneration, or, remotely possible, a neoplastic change of the soft parts, which gives symptoms by limiting joint motion, probably somewhat impinging between the bones, and becoming irritated by joint motion, producing at times synovitis. The condition was thought not to be tuberculous. Operative exploration and removal were advised. A temporary strapping to relax the anterior capsule was made.

An operation was performed, July 3, 1923, under ether anesthesia. A 10 cm. incision was made on the mesial side of the patella, carried down to the synovial membrane, which was opened opposite the patella. The opening of the synovial membrane was continued down to the joint line, presenting at once a dark, liver-colored body, the size of a 25 cent piece, with a small tab like a liver lobe. This was followed beneath the patellar tendon, but without discovery of any single pedicle, the base seemingly growing from a much enlarged infrapatellar fat pad, the attachment of which was largely on the outer side of the joint. The synovial membrane was not stained, but the tissues within the joint were slightly stained, as if there had been a hemorrhage. Examination of the upper culdesac revealed various tabs of dark tissue. In order to define the base of this apparent hemangioma, an incision about the same length was made on the lateral aspect of the joint, and a heavy infrapatellar fat pad was found attached much more laterally than normal. This was dissected off until finally the whole mass, including the tumor mass, could be removed through the internal incision. No large vessels were encountered. Many of the tabs at the base of the suprapatellar pouch were dissected away. The head of the tibia was found covered with more or less fibrous tissue. The semilunar cartilages seemed to be intact and not hypermobile. Both wounds were closed with fine silk in layers, subcutaneous catgut sutures and skin sutures of silk. The knee was immobilized in a heavy dressing, cotton rollers and a compress bandage. The operation was done under the tourniquet. The pathologist reported a cavernous hemangioma apparently removed intact.

The patient had a normal convalescence; the stitches were removed on the seventh day. In May, 1925, the patient reported that she was free from all symptoms, using the knee without discomfort, and had had no return of trouble.

CONCLUSIONS

1. In the diagnosis of "internal derangements" of the knee joint, the presence of hemangioma must be excluded, especially if the history indicates a long standing disability or one resulting from trauma.
2. It is most frequently found in children and young adults.
3. Adequate roentgen-ray and radium treatment should be given before operative intervention is considered.
4. The prognosis should be guarded.
5. Careful observation over a long period, after any form of treatment, should be insisted on.

3411 Prytania Street.

SUGAR CONTENT OF THE BLOOD IN RUNNERS FOLLOWING A MARATHON RACE

WITH ESPECIAL REFERENCE TO THE PREVENTION OF HYPOGLYCEMIA: FURTHER OBSERVATIONS *

BURGESS GORDON, M.D.
L. A. KOHN, M.D.; S. A. LEVINE, M.D.
MARCEL MATTON, M.D.
W. de M. SCRIVER, M.D.
AND
W. B. WHITING, M.D.
BOSTON

Last year the chemical examination [1] of the blood of a group of runners who participated in the American marathon race held in Boston, April 19, showed that the sugar content of the blood at the finish of the race was moderately diminished in two runners and markedly diminished in four. There was, furthermore, a close correlation between the physical condition of the runner at the finish of the race and the level of the blood sugar. It was found that those competitors who had extremely low blood sugars presented a picture of shock not unlike that produced by an overdose of insulin. In making the report, it was suggested that the adequate ingestion of carbohydrate before and during any prolonged and vigorous muscular effort might be of considerable benefit in preventing the hypoglycemia and the accompanying development of symptoms of exhaustion.[2]

In preparation for the next annual race, therefore, which occurred, April 20, 1925, some studies were undertaken during the training season with the purpose of using the information for the coming race. A number of runners who showed evidence of hypoglycemia in the last race were studied with the view of determining at what stage in the course of a 25 mile run symptoms of hypoglycemia were likely to develop. Observations were made also on a few members of the resident staff of the Peter Bent Brigham Hospital in a series of runs between 1 and 10 miles in length. It was found, as Rakestraw [3] has reported in two recent papers, that soon after the beginning of exercise an elevation of the blood sugar occurred, which fell, however, when exercise was prolonged. In our experience, after the blood sugar had declined to about normal there was no striking fluctuation for several miles. Similar changes also occurred in six experienced runners during their training, who later participated in the marathon race. They showed consistently a slight definite initial rise of the blood sugar after running 1 or 2 miles, and then a fall occurred to a point at about normal, which was maintained in some runners for the remaining distance of 25 miles. In others, however, there was a definite decline between the fourteenth and eighteenth miles, with periods of hunger and weakness unless special dietary preparation was made before the trial or unless food was taken during the running.

With these findings and the experiences of the last race in mind, it was decided to give a selected group of runners—those who previously failed to finish in good condition—a large amount of carbohydrate the day before the race so as to increase their storage of glycogen. This diet was carefully selected to meet the taste of the individual athlete after it was found to produce no digestive disturbances while running. In addition, it was decided to furnish glucose in some form to those who developed hypoglycemia in long distance trials and those who reported symptoms of weakness and hunger in last year's race. These runners, therefore, were supplied with candies [4] before the start of the race, each runner being instructed to eat some of the candies when the symptoms appeared. Other participants who were known to develop a hypoglycemia, beginning at a certain stage in a long distance run, were advised to begin eating the candies 1 or 2 miles before this distance was reached.

In general, the observation may be considered from three points of view, and they all reflect the value of glucose feeding in prolonged effort. First, the blood sugar levels at the finish of the race may be compared in the same persons this year and last year. Secondly, the speed with which they ran may be compared in the two years with and without sugar. Lastly, it can be noted whether the ingestion of sugar had any influence on the prevalence of certain symptoms of exhaustion, both during the race and at the finish.

In referring to the table, it will be noted that the blood sugars of all participants that were examined in 1925 were normal and that the physical condition of the runners was excellent at the finish of the race. Four of these men finished in hypoglycemia and were in poor physical condition the previous year. Two of these men who had marked hypoglycemia in 1924 showed normal levels this year. In addition, it will be

---

* From the medical clinic of the Peter Bent Brigham Hospital.

[1] Levine, S. A.; Gordon, Burgess; and Derick, C. L.: Some Changes in the Chemical Constituents of the Blood Following a Marathon Race, J. A. M. A. **82**: 1778 (March 31) 1924.

[2] In the first of the series of studies on marathon runners (Gordon, Burgess; Levine, S. A., and Wilmaers, A.: Observation on a Group of Marathon Runners, with Special Reference to Circulation, Arch. Int. Med. **33**: 425 [April] 1924) it was found that no cardiac hypertrophy occurred as a result of prolonged vigorous effort, and that immediately following a marathon race there was no evidence of dilatation of the heart. Five of these runners who have been competing frequently in long distance races have since been followed by roentgenographic studies during the last twenty-four months. They show no change in the size of the heart, but in the stereoroentgenograms of the chest the lung markings are definitely increased.

[3] Rakestraw, N. W.: I, Chemical Factors in Fatigue, J. Biol. Chem. **47**: 565 (Aug.) 1921. Rakestraw, N. W.; Barley, C. V., and Hahn, Y. D.: II, Chemical Factors in Fatigue, ibid. **56**: 121 (May) 1923.

[4] Each piece of candy contained about 3 gm. of glucose. The candy was made under the direction of Miss Amelia Lautz, formally dietitian at the Peter Bent Brigham Hospital.

noted that three of these runners finished in better position than a year ago and also made better running time. The fourth runner, who finished in ninth position this year instead of eighth, was required to stop for ten minutes at the eleventh mile because of cramps and diarrhea, and even then finished only a few seconds behind his last year's time. He was in excellent condition at the finish, whereas last year he showed quite a marked hypoglycemia.

Observations on Marathon Runners

Runner's No.	High Carbohydrate Diet in Training	Sugar Findings During Race	Running Time 1924	Running Time 1925	Position at Finish 1924	Position at Finish 1925	Condition at Finish 1924	Condition at Finish 1925	Blood Sugar,* Mg. per 100 C.c. Blood Plasma 1924	Blood Sugar,* Mg. per 100 C.c. Blood Plasma 1925
20	+	+	2°, 57′	2°, 51′	15	13	Fair	Good	65	105
103	+	—	2°, 50′	2°, 47′	13	6	Very poor	Very good	50	111
74	+	+	3°, 21′	3°, 16′	41	21	Fair	Good	65	81
19	+	—	2°, 43′	2°, 44′	8	9	Very poor	Very good	49	92
1†	—	—	2°, 39′	2°, 31′	1	2	Good	Good	89	102
8‡	+	+	2°, 38′	2°, 49′	3	10	Good	Good	..	...
100‡	+	+	2°, 41′	2°, 42′	6	7	Good	Good	..	...
96	+	+	3°, 00′	2°, 59′	19	15	Fair	Good	..	...
18	+	+	3°, 03′	3°, 04′	23	21	Fair	Good	..	...
5	+	+	3°, 14′	3°, 08′	31	26	Fair	Very good	..	...
102§	+	+	......	3°, 00′	..	19	......	Good	..	...
16	+	+	3°, 20′	2°, 58′	37	15	Fair	Very good	..	...
37§	+	+	......	3°, 22′	..	37	......	Good	..	...
114	+	+	3°, 27′	3°, 07′	42	24	Poor	Very good	..	...
21¶	+	+	......	2°, 37′	..	4	Poor	Very good	..	...
7	+	..	3°, 15′	2°, 57′	33	16	Fair	Good	..	...
80#	—	+	......	3°, 22′	..	28	......	Poor**	..	...

* Determinations made by the method of Folin according to his latest modifications.
† No change made in diet.
‡ Suffered from cold in 1925.
§ Did not finish in 1924 because of an injury to the foot.
¶ Failed to finish in 1924 because of poor condition.
# Did not compete in 1924.
** Advised not to eat sugar or potato before the race.

Unfortunately, it was impossible to obtain blood for examination from a larger group of runners, but several were interviewed and studied with the view of eliciting signs and symptoms of hypoglycemia. Of this group a number of runners, who were in very poor physical condition at the finish in 1924, were studied during the training season and found to carry a low sugar after the fourteenth mile, as mentioned above. They had been advised to eat more carbohydrate before the race and were also supplied with candy during the run. According to the personal statements of the men and their physical appearance, there seemed to be a striking improvement as a result of sugar feeding.

There are several individual experiences with some of the runners which emphasize the points made above. One man who was studied during the training and found to develop a moderate hypoglycemia after fourteen miles, when taking no sugar, was given glucose candies, but had to give up the race at the eighteenth mile because his body was numb from cold. At this time, a blood sample showed a normal sugar level. This illustrates in the same individual that glucose feedings prevented hypoglycemia which otherwise would have very likely occurred.

One runner who developed symptoms of exhaustion between the tenth and twelfth mile arrived at the first station in very poor condition and wished to retire from the race. He was persuaded to take some tea and candies and continued running. He made only one other stop for candy between this station and the finish line. When asked after the race how he felt while running, he said that he felt "fine except for weakness and starving" and "felt better after eating the candy."

There was another runner who was not followed during the training season and, so far as we know, had never previously competed in a marathon race. He was advised, so he stated, not to eat sugar or much potato during his training. He apparently started the race in good condition, but was noticed by observers to be running poorly and, as he passed the second station, it seemed as if he would collapse. He stopped at Station 3 and asked for something to eat. He was given an orange and some candy. A few blocks farther on he was noticed to be eating the orange and running well. A short distance beyond, however, he was noticed again to be running poorly. He finished in very poor condition and showed the picture of hypoglycemic shock noticed frequently in last year's race. After recovering, he told us that the only time during the last 16 miles that he felt fit was for a short period after eating the orange and candy. Quite likely this man was an example of the carbohydrate temporarily relieving the hypoglycemia.

A number of the runners volunteered information, which strongly suggested that the sugar intake during the race materially influenced their general condition and improved the running time. Such remarks as "Every time I ate a piece of candy I felt fresh," "I couldn't have done without the candies on a bet," "If I didn't eat the candies I couldn't have finished," illustrate how the men themselves felt about the beneficial effects from sugar.

SUMMARY

Marathon runners who competed in the race of 1924 and showed blood sugar levels below normal were placed on a moderately high carbohydrate diet during this year's training season. In addition, they were advised to take a large amount of carbohydrate twenty-four hours before the race. Another group of runners who developed symptoms of weakness and hunger in the 1924 race were studied during this year's training season with the purpose of determining if possible, at what stage in a 25 mile run the symptoms of hunger and weakness were likely to develop. It was found that this was apt to occur between the fourteenth and eighteenth miles. Therefore, in addition to being advised to eat moderately large amounts of carbohydrate before the race, these athletes were supplied with glucose candies to be eaten from time to time while running. In addition, they were supplied with tea containing a large amount of sugar at stations along the course. The blood studies showed normal sugar levels in all runners, in contrast to the low figures obtained last year. There was also a striking improvement in their general physical condition. In a number of instances the running time was faster than in the year previous and the participants finished in better position. It seems, therefore, that the picture of exhaustion, weakness, shock and other symptoms of hypoglycemia following prolonged effort may be prevented by the adequate and timely ingestion of carbohydrate.

Advancing Practical Therapeutics.—It is the method of Sydenham applied to treatment which is called for at the present day to advance our knowledge of practical therapeutics. A crusade on these lines would be a fitting tribute to the great master of clinical medicine and help to remove a slur which undoubtedly reflects on the good name of medicine as a scientific profession.—Bramwell, Edwin: *Lancet* **1**:265 (Feb. 7) 1925.

DEMONSTRATION OF THE FEMALE SEX HORMONE IN THE CIRCULATING BLOOD

I. PRELIMINARY REPORT *

ROBERT T. FRANK, M.D.
MARIE-LOUISE FRANK, B. es Let.
NEW YORK
R. G. GUSTAVSON, A.M.
AND
WALTER W. WEYERTS, A.B.
DENVER

In a previous paper,[1] we showed beyond contraversion that the follicle fluid, corpus luteum and placenta contained the same hormone, which, until its chemical nature is better defined, we denominate simply as "the female sex hormone." For the three endocrine glands involved we have coined the collective name of "gestational gland" to designate their function.

Today we are able to show that the female sex hor-one is present at times in demonstrable quantity in the rculating blood. No full details need be given in this eliminary communication.

The literature contains few and unconvincing referices to this subject. Marshall[2] injected the blood of trous female dogs into anestrous female dogs and tained faint signs of heat. Tuffier[3] produced (?) enstruation in two amenorrheal women by injecting c.c. of blood obtained from women who were just ginning to menstruate. As our work shows that the rmone is present only in great dilution, it seems likely that the small quantities of blood employed by ese two experimenters sufficed to produce the phemena ascribed to the injections. The possibility that e small quantity added to the circulation sufficed to ss the minimal threshold cannot be denied.

Through the courtesy of the Denver branch of rmour and Company and the cooperation of Dr. I. L. rstow, U. S. veterinary inspector at the Armour ant, we were able to obtain the blood of five sows in trus,[4] five not in estrus, and the blood of one bull.

An alcohol benzene extract of each of these blood ecimens was injected into one or more castrated ts, and the vaginal smear watched.[5] None of the anestrous bloods, or the male blood, gave a positive reaction. Of the five bloods obtained from estrous animals, four gave positive results with a total dosage of 75 mg. of crude extract. With present methods of extraction, at least 300 c.c. of estrous blood is necessary to obtain 75 mg. of extract necessary for the test.

Even with the present crude and not quantitative methods of concentration, these results show that: (1) the female sex hormone can be recovered from the circulating blood, and (2) the quantity in circulation is greater during estrus than during the interval.

Refinement of methods will be sought by us in order to devise quantitative methods of extraction which will enable us to study the amount of sex hormone present under physiologic conditions, such as prepuberty, puberty and the fertile and infertile sex cycle, as well as in pathologic states such as amenorrhea, sterility and menorrhagia.

---

* From the Research Laboratory of the National Jewish Hospital for Consumptives, Denver, and the Chemical Laboratory of Denver University.

[1] Frank, R. T., and Gustavson, R. G.: The Female Sex Hormone and the Gestational Gland, J. A. M. A. **84:** 1715 (June 6) 1925.

[2] Marshall, F. H. A.: Phil. Tr. Bull. **197:** 99, Part 2, 1905.

[3] Tuffier, T.: Bull. de l'Acad. de méd. **86:** 99 (July 26) 1921.

[4] G. W. Corner, and A. E. Amsbaugh (Anat. Rec. **12:** 287, 1917) describe the swelling, reddening and slight eversion of the vulva characterizing the visible signs of estrus in the sow. These, together with sanguineous discharge, served as guides to us in selecting estrous animals, but did not fix the exact time of estrus (duration, three days) at which the blood was taken.

[5] The details are given by Frank and Gustavson (Footnote 1).

TONIC NECK REFLEXES IN TUBERCULOUS MENINGITIS IN CHILDREN *

I. S. WECHSLER, M.D.
NEW YORK

In a paper read before the American Neurological Association,[1] I discussed the clinical application of the Magnus and de Kleijn tonic neck reflexes in various types of diseases of the nervous system and recorded also a number of cases of tuberculous meningitis. There I suggested that the reflex may possibly have limited clinical value and discussed its pathologic, anatomic and physiologic significance. The literature on the subject was fully referred to. Since then I have had occasion to observe an additional number of cases of tuberculous meningitis. While the total number is still too small to warrant definite conclusions, it seems that the reflex can be elicited sufficiently often to justify looking for it in every case of tuberculous meningitis.

As is well known, the Magnus and de Kleijn tonic neck reflex is a physiologic sign elicited in decerebrate animal preparations. In such animals, if the head is turned so that the snout points to the side, the limbs on the "chin side" become more extended and rigid, while those on the opposite, or "occiput side," become flexed and lose tonus. If the position of the head is reversed, the tone and posture of the limbs change correspondingly. The response elicited is a definite reflex; it comes on after a short latent period and persists as long as the position of the head is maintained. There are other tonic neck reflexes, such as bending the head forward (Brudzinski maneuver) wherein all the limbs flex, bending the head backward when all the limbs extend, or bending (not rotating) the head to the side.

The general clinical application of the neck reflexes has limited value. It is essentially an anatomic and physiologic rather than a pathologic sign. But in the main it points to a midbrain lesion. As tuberculous meningitis is very often a basilar meningitis, and frequently interpeduncular, it involves to a great extent that region, transection of which in the animal results in decerebration. On theoretical grounds, therefore, I suspected that one might observe the tonic neck reflexes in tuberculous meningitis. Clinical observation confirmed this expectation. For various reasons, fully discussed in the article referred to, the reflexes are not found in other forms of meningitis.

Without recording in detail the histories and findings in all the cases of tuberculous meningitis, I may state that the neck reflexes occurred in ten out of the twenty-three patients whom I have so far had occasion to study.[2] Table 1 shows the number of cases wherein the reflex was elicited, while Table 2 gives a list of the cases in which I failed to obtain them.

It should be pointed out that the reflex was obtained in very young children. Of the ten positive cases, only one occurred in a child older than 3½ years, while of the thirteen patients who failed to show the response, only two were younger than that. It would seem, then, that the younger the child the more likely are the signs of "decerebration" to appear in tuberculous meningitis. Another point worthy of note is that whenever the neck reflexes were elicited the Brudzinski sign also was present. The converse was not true. The association of the neck reflexes with the Brudzinski sign is of importance because it confirms the view that the latter is in itself a tonic neck reflex. From the clinical point of view, the presence of the neck reflexes is of grave significance, as it indicates severe midbrain involvement.

---

* Read before the Section on Nervous and Mental Diseases at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Wechsler, I. S., and Brock, S.: Clinical Application of the Tonic Neck Reflexes, Arch. Neurol. & Psychiat., to be published.

[2] The observations were made in the Mount Sinai Hospital in the service of Dr. Schick, in Bellevue Hospital in the service of Dr. Wilcox, in the Babies' Hospital in the services of Drs. Norton and Bartlett, and in the Beth Moses and Greenpoint hospitals. I am indebted to the resident interns of the hospitals for their cooperation, and to my associate, Dr. A. M. Rabiner, for assistance in observing cases and recording the histories.

METHOD OF OBTAINING THE REFLEXES

First the position of the child, whether it lies flat on the back or on the side, and especially the position of the limbs whether in flexion or extension, is observed.

Table 1.—*Age in Cases of Tuberculous Meningitis in Which Neck Reflexes Were Elicited*

Patient	Age	Tuberculous Meningitis
1	9½ months	Confirmed at necropsy
2	3 years	Confirmed at necropsy
3	16 months	Confirmed at necropsy
4	18 months	Clinical diagnosis
5	10 months	Clinical diagnosis
6	16 months	Clinical diagnosis
7	3½ years	Clinical diagnosis
8	2 years	Clinical diagnosis
9	10 months	Clinical diagnosis
10	9½ years	Clinical diagnosis

Table 2.—*Age in Cases Clinically Diagnosed as Tuberculous Meningitis, with Absence of Neck Reflexes*

Patient	Age
11	3½ years
12	5 years
13	5½ years
14	5½ years
15	8½ years
16	10 years
17	11 years 10 months
18	5½ years
19	7 months
20	2 years
21	8 years
22	6 years
23	7½ years

It sometimes happens that, as the child lies on one side, the limbs on the side to which the chin is turned are more or less in extension, while those on the opposite side are more or less flexed. This in itself would constitute the position which is the result of the Magnus and de Kleijn neck reflex. The child is placed flat on the back and the position of the limbs observed. Then the head should be rotated to one side so the chin points to the shoulder (one may have to overcome the neck rigidity). The head should be held in this fixed position After a few moments, one should note the position of the limbs, observing which flex and which extend, as indicated in the accompanying illustrations. The limbs should be felt also to see whether they become more rigid or flaccid. The head position should be maintained for a minute or so, then the process should be reversed by rotating the head to the opposite side. When the reflex is positive, after a short latent period of a few seconds, one or both limbs on the side to which the chin is turned become extended, show tendency to extension or at least become hypertonic, while those on the other side tend to flex and become less rigid Sometimes, as part of the flexion reflex, a spontaneous Babinski may be observed on the occiput side.

CONCLUSIONS

I have observed the tonic neck reflexes in a little less than half the number of cases of tuberculous meningitis studied. They occurred with greatest frequency in children below 3 years of age. The sign is of physiologic and anatomic and not especial pathologic significance. Any lesion at the midbrain level may, on occasion, give rise to the reflex. That it was found in a number of cases of tuberculous meningitis is merely clinical proof of what is known of its pathology, namely, that it is frequently or preponderatingly a basilar meningitis. I have not elicited the sign in other forms of meningitis. It occurs rarely in few other clinical entities in children The sign, when present, is always consistent and is a true physiologic reflex, although it may be elicited at one time and not at another. Whether or not it has clinical value, only further observation of many cases of tuberculous meningitis will determine.

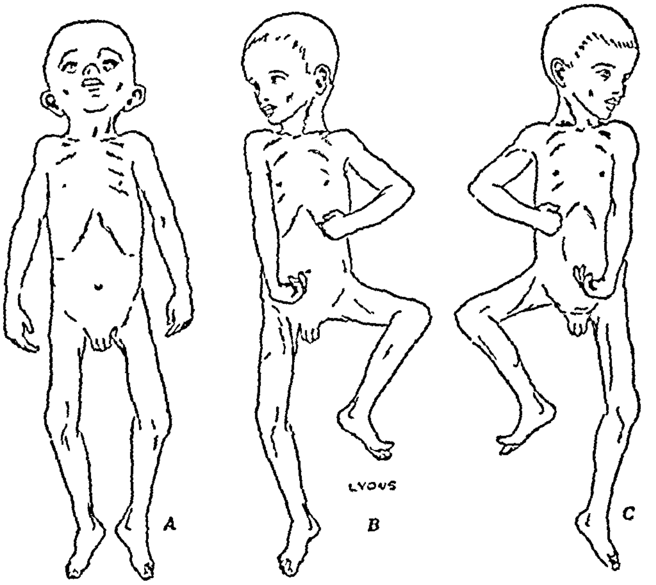


Fig 1.—Child with tuberculous meningitis *A*, appearance in recumbent position, *B*, typical neck reflexes, flexion (with the Babinski toe sign) and abduction on the occiput side; extension and adduction on the chin side, *C*, changes in the postures of the limbs on reversing the position of the head

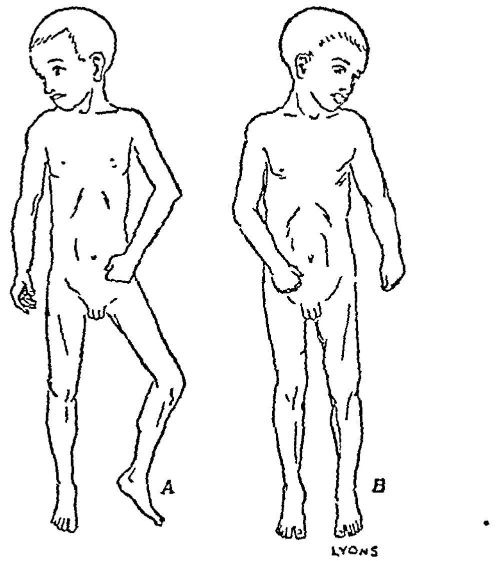


Fig 2.—Case of tuberculous meningitis *A*, showing less marked postural changes, *B*, partial flexion of upper extremity on the occiput side

1291 Madison Avenue.

AGRANULOCYTIC ANGINA

REPORT OF A CASE WITH TWO ATTACKS *

JOSEPH A. MOORE, M.D.
AND
HENRY S. WIEDER, M.D.
PHILADELPHIA

In view of the invariably fatal outcome of the reported cases [1] of agranulocytic angina, we thought it worthy of interest to report a case in which the patient completely recovered from the first attack but succumbed to the second.

REPORT OF CASE

First Attack.—J. M., a married woman, aged 42, well nourished and weighing 150 pounds (68 kg.), was taken ill, Dec. 12, 1922. She was treated by her dentist for soreness of the gums. There was a whitish exudate on the gums at the dental margin, and for about a week her case was regarded as one of Vincent's disease. During this period the temperature ranged from 99 to 100 F.

The process then extended to one tonsil, and one of us was called in to see the patient. One tonsil was partially covered with an exudate that was quite tenacious, and suggested a diphtheritic membrane. The glands at the angle of the jaw were moderately enlarged. Ten thousand units of diphtheria antitoxin was injected. Smears and cultures showed Vincent's organisms. The leukocyte count was 1,200; polymorphonuclear cells, 20 per cent.; lymphocytes, 80 per cent. The red cells were normal. Blood cultures showed no growth. Several Widal tests, made at different times, were negative. Urine examination showed no albumin, no casts and no sugar.

No striking change in the tonsillar exudate was noted following the injection of antitoxin. After the mouth and tonsil were treated with powdered arsphenamin, gradual improvement was observed. Coincident with the condition of the mouth that has been described there was an ulceration of the vulva, which also healed up eventually.

In the second week of the illness the temperature rose to 104 F. at night, followed by a sweat, and dropped to normal in the morning. The patient complained of headache and prostration. At first a possible focus of infection was sought. Roentgenograms of the sinuses, teeth and chest were made, with negative results, except that an infection was found at the root of a tooth. This tooth was extracted under nitrous oxid anesthesia. Headache was severe throughout the attack. The heart and lungs were normal, and the liver and spleen were not palpable. There were no rose spots nor hemorrhages at any time. There was no jaundice. The pulse was regular, full, and always under 100 beats per minute.

After fever of forty days' duration, with a constant leukopenia and a low polymorphonuclear percentage, the white cells increased to 7,000 per cubic millimeter, with 60 per cent. polymorphonuclear cells, coincident with a marked improvement in the patient's general condition. After a somewhat protracted convalescence, the patient recovered her usual good health. After the patient could get about, a complete blood count was made at the laboratory of one of us. The findings were normal.

Second Attack.—Dec. 31, 1924, the patient arrived home in an exhausted and nervous condition after having nursed a sick sister in a distant state. She complained of severe headache and of pain in the sacrum and down the right leg. One-fourth grain (0.016 gm.) of morphin was needed to produce sleep. There was no fever. The patient was kept in bed and given bromids. Milk and eggs were given, in addition to the meals. The mouth and tonsils were normal. After a week of this regimen, the headaches became less severe, and the patient showed marked improvement. At this time she received information of the death of her mother-in-law, which depressed her greatly. Her pains returned and she was unable to sleep even after she was given one-fourth grain of morphin. Jan. 10, 1925, the patient, who had been at home and ill for about eleven days, began to complain of pain under the angle of the jaw. A slightly swollen gland was found there. The tonsil on the same side was normal. January 12, the patient told members of her family that she felt that she was going to die. January 13, headache was very severe and nausea appeared. There was slight redness of the right tonsil. The temperature rose in the afternoon from 101 to 105 F., and the pulse was 120. January 14, the headache became unbearable, the temperature continued at 105 F., nausea was marked, and slight ulcers and exudation appeared on the right tonsil, with opaque white spots on the lower gums. The white blood count was 3,000, and a differential count showed 5 per cent. polymorphonuclear cells with 95 per cent. lymphocytes and a normal number of red cells. Cultures taken from the mouth and tonsils showed staphylococci. The Widal test was negative. The urine showed albumin but no casts. An assistant to one of us was requested to make smears from the throat and mouth, but as the patient was sleeping it was felt best not to disturb her. This sleep was produced by the use of one-twelfth grain (0.005 gm.) of heroin, and lasted from 10 p. m. to 1:30 a. m., January 15, when the patient awoke with a renewal of her intense headache. The temperature was 105.5 F. and the pulse 120 and very feeble. She was given an injection of digitan and strychnin, but showed no improvement. She clamored for more morphin to relieve the headache. Sponging reduced the fever to 102.5 F.; the pulse remained feeble. She was given more digitan and strychnin, with no improvement. There was still further circulatory failure, followed by death at 9:45 a. m. No necropsy was obtained.

COMMENT

Agranulocytic angina is a condition which up to the present time has been reported solely in middle-aged women. All the cases have shown throat symptoms, particularly ulcers and an exudate on the tonsils that resembled diphtheritic exudate in some cases and, in most of the cases, became necrotic. Occasionally the entire tonsil sloughed out. Next in frequency have been exudation on and ulceration of the gums. The genitalia are involved, with processes similar in appearance. In a still smaller number of cases, ulcerations of the intestine and the skin have been found. The most characteristic anatomic change is found in the bone marrow, which appears to be the seat of the disease. The neutrophil cells of the marrow and their precursors are altogether missing or are greatly diminished in number, while the lymphoid and red-cell forming elements are slightly, if at all, reduced. The onset of the disease is usually sudden, with pains in the throat and neck, high fever, normal findings in the organs, except as mentioned above, normal or varying findings in the blood or smears under bacteriologic examination, with no, or moderate, anemia, but with a very characteristic white and differential count (the white cells greatly reduced, in some of the reported cases as low as 600 with very few or no polymorphonuclear forms). In a case reported by Ulrich Friedemann, there was marked improvement under neoarsphenamin, but the patient died later of pneumonia.

DIFFERENTIAL DIAGNOSIS

Agranulocytic angina is to be differentiated from other conditions that may show throat and mouth ulceration and exudation accompanied by leukopenia and a severe course; namely, cases of aplastic anemia, aleukemic leukemia, leukemia under the influence of radiation treatment, monocytic angina and septic processes. The differentiating factors in favor of agranulocytic angina are: the occurrence in middle-aged women, the absence of pallor, the absence of marked anemia, the lack of hemorrhagic tendencies, and the normal platelet count. Where there is opportunity to examine the bone-marrow, the absence from this of neutrophils, myelocytes and myeloblasts, and the presence of erythrocytes, erythroblasts and megakaryocytes are conclusive evidence of agranulocytic angina. Treatment has apparently been unavailable; measures that were used in our case, in the first attack, were used in other cases without avail. In the reported cases various therapeutic procedures, such as the administration of diphtheria antitoxin, neo-arsphenamin (both locally and intravenously), mercurochrome-220 soluble (intravenously), and blood transfusion were tried. As to the cause of the condition, nothing definite has been found. It seems that an infectious toxin having an affinity for, and spending its force on, the neutrophil-producing structure of the bone-marrow is the important factor in causing the disease.

---

* Read before the Philadelphia Laryngological Society, May 12, 1925.

[1] Schultz, Werner: Deutsch. med. Wchnschr. **48:** 1495 (Nov. 3) 1922. Leon, Alice: Deutsch. Arch. f. klin. Med. **143:** 118 (Aug.) 1923. Friedemann, Ulrich: Med. Klin. **19:** 1357 (Oct. 14) 1923. Bantz, R.: Med. Klin. **19:** 1667 (Dec. 23) 1923. Petri, E.: Deutsch. med. Wchnschr. **50:** 1017 (July 25) 1924. Lauter: Med. Klin. **20:** 1324 (Sept. 21) 1924. Lovett, Beatrice, R.: Agranulocytic Angina, J. A. M. A. **83:** 1498 (Nov. 8) 1924. Skiles, J. H.: Agranulocytic Angina, J. A. M. A. **84:** 364 (Jan. 31) 1925. Piette, E. C.: Histopathology of Agranulocytic Angina, J. A. M. A. **84:** 1415 (May 9) 1925.

MEDICAL TREATMENT OF PITUITARY NEOPLASM *

IRVING H. PARDEE, M.D.
NEW YORK.

The frequency of unsuccessful operations on tumors of the hypophysis has led us to search for a method of approach that is less hazardous. Two fields seemed open—that of glandular therapy and that of radiotherapy.

The average benign enlargement of the pituitary gland will proceed along a certain stereotyped course. Ushered in by headaches, there will be a progressive enlargement of the gland, resulting in a constant pressure on the walls of the sella turcica. This fossa will enlarge according to the size of its contained tumor until symptoms of pressure on surrounding brain structures appear. Depending on the direction this growth takes, signs of pressure will develop. Associated with this there may or may not be signs of tissue changes or biochemical disorder, due to disturbance of the internal secretory mechanism of the pituitary or of a closely related gland.

The entire course tends toward recovery. Other endocrine glands attempt to take over the pituitary function and eventually a compensation is established, the progress of the enlargement ceases, and a stage of quiescence ensues. This is a common development occurring with acromegaly. I have seen at least a half dozen policemen in New York who are typically acromegalic, who go about their daily tasks without apparent symptoms. This self-limited compensatory mechanism was first emphasized by Timme [1] and has since been confirmed by many.

Are we then to consider this large group to be cases of pituitary neoplasm? Perhaps it would seem more exact to look on them as cases of hyperplasia of the gland, or better still of hypophysial strumas, analogous in all respects to the thyroid struma, with or without hyperthyroid or hypothyroid symptoms. To divide these cases from cases of true neoplasms would seem at the onset to be practically impossible, but their development and course enable a later differentiation.

Pituitary enlargements make known their presence by causing the symptom of local pressure. More rarely the occurrence of structural and tissue changes calls our attention to the glandular dyscrasia, but it is becoming more evident to us that the classical hypophysial tumors associated with acromegaly or Frölich syndromes are rare. The more frequent endocrine type accompanying them is one in which mild disturbances of growth and a few symptoms of associated glandular disorders are present. Structural changes do not take place in some of these cases because an actual alteration in the pituitary secretion does not occur over a sufficient length of time to allow such changes to show themselves.

The symptoms for which the patient comes are the classical intratemporal "pituitary" headaches,[2] nausea, vomiting, eye disorders, obesity and menstrual disorders. It is toward the relief of these disturbances that our therapy must be directed.

The application of this therapy and its type will be determined by the symptoms and by the type of sella turcica. Approaching blindness, as shown by the optic nerve and examination of the visual fields, demands immediate surgical intervention. A sella turcica that shows a large amount of destruction, evidently caused by a tumor that has overgrown its confines and is destroying associated nerve structures as well, must contain either a malignant or actively growing benign growth that will need surgical removal.

But there are sellae which seem to contain a gland of moderate proportion, hyperplastic or strumatous, or even perhaps an adenoma which comes within a group of so-called tumors that do not need surgical treatment. The sella turcica in these types is enlarged and often noticeable for the erosion of its clinoid processes. Medical treatment in these patients serves to relieve their symptoms and to allow them to return to their work.

The literature on this subject shows a definite though slow swing about in the attitude toward glandular extracts in the treatment of these pituitary enlargements. Leszynsky [3] stated in 1900 that no effect was or could be noticed; scattering cases were reported in the literature of the past eight years showing improvement and recovery of some patients under appropriate medication. Reber [4] quotes cases of Waldeck and de Schweinitz in which there were large sellae and dyspituitary symptoms, and one case of his own showing a return to normal vision from a bitemporal hemianopia after four months' treatment with pituitary and thyroid by mouth. Krug and Elsberg [5] later presented a case [illegible] with an homonymous hemianopia in [illegible] d a decompression. Following the operation, the patient became worse and showed all the symptoms of cachexia hypophyseopriva. Pituitary extract was given, and the patient progressed to practically normal visual fields and recovery from symptoms.

Several years later, Elsberg, in discussing Timme's [6] paper, remarked in agreement with its subject matter that "very marked improvement in some patients is seen after treatment with pituitary extract, including their eye symptoms. Every patient should have the benefit,

---

* From the Neuro-Endocrine Clinic, Neurolog[illegible]

* Read before the Section on Nervous and [illegible] Seventy Sixth Annual Session of the America [illegible] Atlantic City, N J, May, 1925

[1] Timme, Walter: Pluriglandular Compensatory Syndrome, Endocrinology 2:209 (July Sept) 1918

[2] Pardee, I. H: Pituitary Headaches, Arch. Int. Med. 23:174 (Feb) 1919

[3] Leszynsky, W M: M Rec, June 30, 1900

[4] Reber, W Medical Treatment of Pituitary Diseases, New York M J, Feb 27, 1915

[5] Krug, E F, and Elsberg, C A: Case of Hypopituitarism Relieved by Glandular Treatment, Arch Ophth 46:97 (March) 1917.

[6] Timme, Walter: Nonsurgical Treatment of Pituitary Tumors, Arch. Ophth. 2:268 (May) 1920.

before undertaking operative procedure, of pituitary extract injections combined with thyroid by mouth." Cummins[7] more recently reported a case of hypophysial hyperplasia which showed a bitemporal hemianopia returning to normal under thyroid given in doses of 1 grain (0.06 gm.) each day. A case reported by me[8] was the type *par excellence* of a pituitary hypoplasia of a compensatory type. This patient has been watched over a period of eight years, is now free from symptoms, and has returned to normal.

TREATMENT

The desideratum in therapy is the relief, first, of symptoms arising from the pituitary and, secondly, of those from the other endocrine glands. As the etiologic basis of these disturbances is apt to lie without the pituitary, treatment must be given to the basic endocrine disorder, whether it be an infection, toxemia, or disease of some of the other glands. Possibly the thyroid may be iodin deficient; if so, sodium iodid and perhaps thyroid must be given. A gonadal disturbance must be appropriately treated with a proper dosage of corpora lutea or ovarian extract. Supportive glandular therapy must be given as well, for a dyspituitarism will often cause a disturbed function in one or more hormones.

The feeding of pituitary gland substance to our patients resulted in the relief of their symptoms. Oral administration is always desirable and will bring about definite improvement, but at times it is ineffectual and should be supplemented by hypodermic injections of pituitary extract from the posterior lobe. This should be given in doses of from 7½ to 15 minims (0.5 to 1 c.c.) two or three times a week, or, in urgent cases, every day. As symptoms subside the pituitary extract may be given once a week, or intermitted, and reliance placed on the oral therapy.

The treatment of tumors, either hyperplasia or true neoplasms, must include radiotherapy. The foreign journals, and to a lesser extent our own literature, abound with reports of successful results. Frazier[9] remarks that it is in the exceptional case that there may be a disturbance of pituitary function, such as adiposity. In these cases with intracranial extension which may occur either spontaneously or through operative procedure he advocates an approach by decompression of the sella. Radium or roentgen-ray treatment can be applied more effectively. Caution must be urged in the use of radium, for at the moment, a patient is under my care in whom a loss of vision in one eye, previously hemianopic, was suddenly brought about after radium was inserted by an enthusiastic expert. The roentgen ray can now be applied effectively through the temple and frontally, as results have shown. Roentgen-ray treatment for the glands has been placed on a firm footing, especially for the thyroid and to a lesser degree for the ovary. Only the difficulty of approach, namely, the density of the skull, has prevented a more universal use of the roentgen ray in pituitary disease. The following case reports are examples of some of the pituitary types discussed, in which glandular therapy has brought about recovery. In two of the cases, combined glandular and radiotherapy was used. A number of other cases have had an equally favorable response.

REPORT OF CASES

CASE 1.—*History.*—A. F., a woman, aged 35, a cook, admitted in June, 1921, had had impaired vision in the right eye for seven years. The left eye had become involved shortly before admission. The father was 6 feet (183 cm.) tall and had large bones. The women of her family were large, and she had several aunts who were stout. Her hands and feet had been increasing in size for five years and her weight had increased from 145 to 215 pounds (66 to 97 kg.). Severe headaches were present before the cessation of menses. The menses began at 18, were regular every four weeks, and stopped at 22.

Examination.—Her height was 5 feet 3 inches (160 cm.), and the skull was macrocephalic. There was a slight acromegalic facies with slight prognathism of the upper jaw. The teeth were somewhat spaced. The torso-leg ratio was 47:85. The skin was oily and slightly puffy. The hair was slightly deficient on the outer third of the eyebrow. There was a slight nasal brow and a few moustache hairs. The pubic hair was of the feminine type. The hands were broad and acromegalic.

There were no organic neurologic signs. The patient could see the hand with the right eye and the vision of the left eye was 20/30. Both nerves showed simple atrophy. There was no papilledema. The characteristics of the visual fields were a large central scotoma with definite hemianopic defect in the right eye. There was a marked loss for form and colors in the temporal half of the left eye.

A roentgen-ray examination showed large frontal sinuses. The sella was practically destroyed, although the floor was not eroded to any great extent. There was a calcareous ring evidently enclosing the pituitary fossa, which seemed to be continuous with the remains of the dorsum and the remains of the base of the anterior clinoids. The picture suggested a benign tumor of the pituitary gland, probably an adenoma.

Treatment and Course.—Desiccated pituitary body was given in doses of 1 grain (0.065 gm.) three times daily. Pituitary extract was given in doses of 7 minims (0.4 c.c.) twice a week. Thyroid was given in 1 grain (0.065 gm.) doses once a day. Dr. Cushing consented to operate, but medical treatment was first to be carried out.

About a year later, during which time the patient was continuing the pituitary extract injections, there were no symptoms, the menses were still absent, the eyes had improved considerably, and the fields had enlarged. In January, 1925, she rarely had headaches. She had gained 2 pounds (0.9 kg.), and had not increased in growth. Her sight was still improving. There were no menses; the hair was falling out. Treatment was stopped.

CASE 2.—*History.*—A. S., a woman, aged 23, admitted June 10, 1924, whose family history was negative, had frequent frontal headaches, with pain over the left eye. Loss of sight in the left eye had been developing gradually over the two years before admission. She had gained 50 pounds (22.7 kg.) during that time. There was no nausea, vomiting or dizziness. There was no polyuria. The menses began at 14 and were regular. Since she was 20 the menses had become increasingly irregular until one year before examination, and there had been no menses from that time.

Examination.—The patient was obese, especially about the hips and breasts. The skin was smooth and dry. There was slight conformity to the hypopituitary build, with short, tapering fingers. An examination of the eyes revealed that the right pupil reacted to the light and in accommodation; the left did not. There was normal vision in the right eye; with the left eye she counted the fingers at four inches. The right field was normal; the left field was obliterated, and there was simple atrophy of the optic nerve. The floor of the sella was partially destroyed, and the dorsum was eroded. The anterior clinoids were still intact, though showing evidence of absorption. The examination showed what was apparently a pituitary tumor involving the posterior portion of the gland. The laboratory reported the basal metabolism rate + 8. The blood count was normal; there was no alteration in the blood chemistry, and the sugar curve was 0.187, 0.210, 0.166, 0.133.

Treatment and Course—Pituitary extract was given in doses of 8 minims (0.5 c.c.) three times a week, and thyreoprotein, 1 ampule, twice a week. The patient reported in May, 1925. She had no headaches; her weight was about the same. The menses had not been present. She was working regularly and had been taking pituitary extract once a week since June. Corpus luteum in doses of 2 grains (0.13 gm.) three times a day was added to the medication.

---

[7] Cummins, J. D.: Hyperplasia of Hypophysis Cerebri, Brit J. Ophth. **7**: 260 (June) 1923.

[8] Pardee, I. H.: Some Neurological and Therapeutic Aspects of Hypophysial Tumors, New York M. J. **117**: 415 (April 4) 1923.

[9] Frazier, C. H.: The Control of Pituitary Lesions as Affecting Vision by Combined Surgical, X-Ray and Radium Treatment, Arch. Ophth. **50**: 217 (May) 1921.

Case 3.—*History.*—L. B., a boy, aged 11, admitted Feb. 7, 1920, whose family and past history was not notable, had a severe pain in the head accompanied by vomiting. He rarely saw double with the headaches. He had some polydipsia and polyuria of several months' duration.

Examination.—There were no organic signs. In an examination of the eyes by Dr. W. Holden, March 29, the eyes were normal; another examination, June 8, gave the same result. The patient was not seen for one and a half years, and returned in October, 1922. Examination was made at the Neuro-Endocrine Clinic. The general status showed the boy, aged 13, to be precocious. He tended toward slight obesity, which centered especially in a lower abdominal fold and in round, padded hips. A lack of sex differentiation was noticeable. He had small genitals, with some implantation of the penis. There was a lack of body hair throughout. The face was round, with small features. The whole suggested the hypopituitary type, though not typically Frölich.

An eye examination by Drs. Grout and Holden revealed the vision of the right eye 20/20 and of the left eye, 20/200. The right disk was distinctly blurred in outline, with a few discrete hemorrhages present. The level of the disk was raised about 1 diopter. The left disk was atrophic. The right eye had absolute temporal hemianopia; the left, definite hemianopia, not outlined because of poor vision. Three months later the edema had disappeared from the right disk.

A roentgen-ray examination by Dr. C. W. Schwartz showed a slight increase in intracranial pressure. The sella was exceptionally large and well rounded. The dorsum was thin and clear cut, with no erosion; this was also true of the anterior clinoid. The floor was intact.

Treatment and Course.—Anterior pituitary gland was given in doses of 2 grains (0.13 gm.) once a day; whole pituitary in 1 grain doses three times a day, and pituitary extract, one-half ampule, once a week.

Jan. 11, 1923, the patient felt fine and had no headaches. He had gone two months without pituitary extract. He carried on well until August, 1923, having gone almost a year without pituitary extract. There was a return of headaches and vomiting, and vision became completely lost in the left eye. A return to pituitary extract and medication by mouth resulted in a complete and final subsidence of headaches, except for an occasional dull feeling in the head.

Because of the fear of loss of the vision, roentgen-ray treatments were given by Dr. F. C. Wood. The patient has become free from symptoms. The vision in the right eye has been good, and no further encroachment on the field of vision has been noted. He has carried on as an honor student and is being carefully watched for any progress.

Case 4.—*History.*—H. R., a boy, aged 14, whose family history was irrelevant, admitted in June, 1923, to the clinic at St. Luke's Hospital, had complained of headaches about one and a half years before examination, not long after an attack of grip. Because of the persistence of these headaches, he had his eyes examined. The physician noted some disturbance in the eyes, worse in the left eye. Shortly after, the patient became cross-eyed. He was sent to Dr. Harvey Cushing in Boston for an operation. A transfrontal operation was done, and a pituitary adenoma was found, well out of the confines of the fossa, off to the right side, beyond the carotid artery. Dr. Cushing removed as much as seemed safe and recommended roentgen-ray therapy. About two months later the patient came to my clinic. He was restless and irritable. He had a periodic large appetite, and was fatigued, drowsy and sleepy. There were no headaches.

Examination—No organic neurologic signs were revealed except for the left external strabismus and the absence of vision in the left eye. The right eye presented a slight hemianopic defect, and the left disk was pale and atrophic. There was slight breadth of the face, and no prognathism. The fat distribution was slightly of the hypopituitary type, but the bony and tissue growth did not conform to any fixed group. A roentgen-ray examination of the skull showed a complete destruction of the entire sella region, including the floor and clinoid processes, with an irregular outline throughout.

Treatment and Course.—Whole pituitary was given by mouth, and pituitary extract, hypodermically. The result of this was that the patient showed the marked exhaustive symptoms sometimes seen after the latter. They had to be discontinued, and sole reliance was placed on the roentgen-ray treatments. Of these he had from twenty to twenty-five, given temporally and frontally by Dr. F. C. Wood. The results were satisfactory, the boy becoming alert, well behaved and free from symptoms. No change has been noted in the roentgenogram.

COMMENT

The gradually increasing number of case reports in the literature and the experience of those working in our clinic established the opinion that all pituitary neoplasms, whether large or merely hyperplasias, should be given the benefit of medical treatment, provided vision is not in immediate danger of becoming lost. First, glandular extracts should be used, especially pituitary and pituitary extract, and, as a later resort, roentgen-ray treatment. Many patients under this procedure will be saved from a major operation, the outcome of which is often problematic.

The types of cases most likely to respond to the foregoing method are those of pituitary hyperplasia and adenoma, which are not of the destructive type and do not seem to be growing rapidly. These often show symptoms of glandular disturbances elsewhere and will often develop erosion and enlargement of the sella, chiasmal pressure and, perhaps, signs of pyramidal tract pressure.

CONCLUSIONS

1. Hypophysial enlargements may be considered from two points of view, (1) a destructive rapidly growing neoplasm, and (2) benign adenomas, strumas or a hyperplastic state.
2. Without question, the former type eventually needs operation; most of the latter are amenable to medical treatment, including glandular and radiotherapy, in the same manner that the thyroid is subject to similar medical therapy, surgical treatment being used when necessary.
3. The glandular therapy recommended is desiccated pituitary body by mouth and pituitary extract hypodermically. Combined with this, any necessary supportive or substitutive therapy should be given to other endocrine organs.
4. Many patients recovered under the foregoing treatment.

74 West Forty-Eighth Street.

ABSTRACT OF DISCUSSION

Dr. Tom Williams, Washington, D. C.: All of Dr. Pardee's cases are quite recent, and the objection might be raised that these are cases that might go on to relapse, in spite of the treatment.

I think one might say that medical treatment, as Dr. Pardee is advocating, may be, perhaps, more universally possible than one might suppose from the 3 per cent. that Dr. Frazier reported, if the cases are detected sufficiently early. And in order to do that, I think one must impress on the profession the need of a very careful and thorough study of every case of chronic headache, that they should not be dismissed as trifling, and that they should not be looked on as psychologic. I fear that many patients are allowed to go on, treated expectantly or by psychotherapy, who have incipient organic disease, which only a very careful study will reveal. We must find these cases long before there is optic atrophy or a marked impairment of the visual field. We must find them when the impairment of the visual field is very slight and when there is only a slight congestion of the disk, and when the only symptoms are glandular anomalies and some neighborhood signs of the slightest degree.

Dr. A. W. Adson, Rochester, Minn.: At the present time, we who are interested in neurologic surgery are only attempting to relieve those patients who come with optic disturbances. My experience in the use of pituitary extracts, either the whole gland or the anterior lobe in a desiccated form, or even the posterior lobe, has not been as satisfactory as we would like. Every patient who presents a pituitary syndrome is studied very carefully from the metabolic point of view. I recall a patient who had the typical pituitary syndrome of a hypo type with a bitemporal hemianopia. His metabolism was —27. I started with small doses of whole gland, taking daily metabolic readings, and also observing the various symptoms of fatigue, low blood presure and eye changes; his field of vision was checked twice a week. We pushed the dosage to 40 grains (2.6 gm.) three times a day for a period of three months, without results. I try giving all patients pituitary, usually about 5 grains three times a day for ten days to two weeks, before operation is considered. I have also given the posterior lobe, that is, the hypodermic solution, which acts in the control of polyuria, diabetes and syphilis. Desiccated thyroid or thyroxin given to these patients controls their metabolic rate. I have sent some patients home on the desiccated thyroid, 2 grains (0.13 gm.) twice a day for as long as three or four months, and then had them come back for observation and surgery. Patients with hypopituitarism, with low blood pressure, excessive gain in weight, easily fatigued, and lacking interest in their surroundings, are poor surgical risks, and it is for this particular reason that we have been studying the influence of the pituitary and thyroid. The thyroid reduces weight. It does raise the blood pressure and metabolic rates, and apparently improves the general condition. Some patients have a history of hemianopia, either clear-cut bitemporal or only a notch in the field, the reading having been taken by competent ophthalmologists, with a recession and then a progression of the hemianopia. Just recently we had a patient who had some difficulty with her vision. She had mild acromegalia. In taking a long ride across the plains of Arizona she developed very marked visual disturbances which proved to be a bitemporal hemianopia. She recovered practically, but the hemianopia recurred in six months. When I saw her the condition was quite pronounced and I operated. On opening the pituitary capsule, I found a very extensive, old blood clot. It seems fair to assume that what occasionally occurs in cases of adenoma of the thyroid may also occur in cases of adenoma of the pituitary; that is, there may be hemorrhage within the pituitary which will produce a sudden exaggeration of the hemianopia, with a recession. In brief, then, the problem is no doubt a medical one. I believe that it still remains for some one to isolate the active hormone of pituitary to help the patient's hypopituitarism and also to help his acromegalia. Roentgen-ray or radium treatment may be of some value. However, symptoms often progress without any retrogression, following heavy roentgen-ray and radium treatment.

Dr. Marcus Neustaedter, New York: I should like to ask Dr. Pardee a question about the first case he showed. In this first case, I understand he had a bitemporal hemianopia, enlargement of the sella, and a calcified ring across. How does he explain the disappearance of hemianopia after pituitary treatment, in spite of the fact that the calcified ring remains?

Dr. Julius Grinker, Chicago: I should like to know whether Dr. Pardee has had small sellae in his series, and if so, whether or not he would advise pituitary feeding for them. I should also like to know whether the fields of vision have been markedly enlarged after the feeding. If I am correct, I believe Dr. Pardee mentioned one case. In that case were the records made by the same person who charted the field before the treatment was administered? Another question I should like to ask is whether Dr. Pardee in his series found any epilepsy combined with dyspituitarism, and if so, whether pituitary feeding had any influence on the convulsions.

Dr. Irving H. Pardee, New York: In reply to Dr. Williams, unfortunately I cannot give in percentages the number of cases which responded to medical treatment and which needed surgical treatment. I do not wish to give the impression that surgical treatment is not necessary. As to the duration of our cases, two patients were under observation a year and a half. The others have been watched for a period of from four to eight years. Of the two cases of shorter duration, one was the operative case in which radiotherapy was given. The other patient is free from symptoms, shows no progression of her visual field, and at present I think we are safe in feeling that her pituitary is quiescent. Dr. Williams also asked: Why give the pituitary when the pituitary gland is disturbed I do not know, actually, except that we feel that the blood needs a certain amount of pituitary secretion. When it needs it, it calls on the pituitary gland for more secretion. If the pituitary cannot give that further amount of secretion because of its disease, it may stimulate it to grow or to develop adenomatous masses. Under those circumstances, we have given pituitary extract hypodermically and by mouth, with effect. Dr. Williams also asked why, if these cases show disease of the anterior lobe of the pituitary, posterior lobe should be given. I do not believe these cases all show disturbances of the anterior lobe, and I do not know that we are quite ready to say definitely yet which symptoms are due to the anterior lobe, which to the posterior lobe and which to the infundibular portion. We can only draw on our present knowledge at the moment to say that some of these patients showed hypopituitary manifestations as seen in anterior lobe disturbance. I should like to emphasize one point brought out by Dr. Adson—the effect of strain or trauma on the pituitary gland. In the case of the patient who was taking a long trip across the continent, it was followed by an increase of her pituitary symptoms. We have seen many cases (at least five or six) in which the pituitary symptoms were brought about by trauma to the head, and in one case following sexual intercourse. Dr. Neustaedter asked why there was a disappearance or diminution of the hemianopia in the case that showed the calcified ring about the pituitary gland. I do not know. Probably the gland was not completely enclosed by the calcification. I feel that patients who present small sella turcicas are not really suffering from a pituitary tumor. I think we do see acromegalic patients with small sella turcicas, but they are not necessarily cases of pituitary enlargement, and I do not feel that we can say the pituitary really enlarges to amount to anything, unless it is shown in the roentgenogram, unless, perhaps, that enlargement should be above—suprasellar. The field of vision that was taken in these cases has been watched very carefully. We feel that is the most important information in regard to telling us whether or not these cases are doing satisfactorily on medical treatment, or whether they require surgical intervention. None of these particular cases showed any convulsions. We have had a few cases with convulsions, but I do not feel that I can draw any conclusions at present as to the effect of glandular therapy on convulsions, which may or may not be due to the pituitary gland.

Infant Mortality in Porto Rico.—Infant mortality is high in Porto Rico, as is also the birth rate. While the total number of cases of infant deaths registered in the United States for 1918 amounted to 101 per thousand (registration area) and while New Zealand shows 48.4 per thousand, Porto Rico showed 142 deaths for every thousand births during the fiscal year 1918-1919. In 1923-1924 the rate was 128. Gastro-intestinal diseases produced the greatest number of deaths; then come diseases of early infancy, followed by those of the respiratory apparatus. These three groups aggregate 5,123 deaths; that is, 75 per cent. of all the cases of infant mortality. The five principal causes of death, in their order of importance, are specifically as follows: diarrhea and enteritis, 2,097; congenital debility, 1,082; acute bronchitis, 547; infantile tetanus, 503, and rickets, 449.—Isern, A. F.: *Porto Rico Health Rev.* 1:3 (July) 1925.

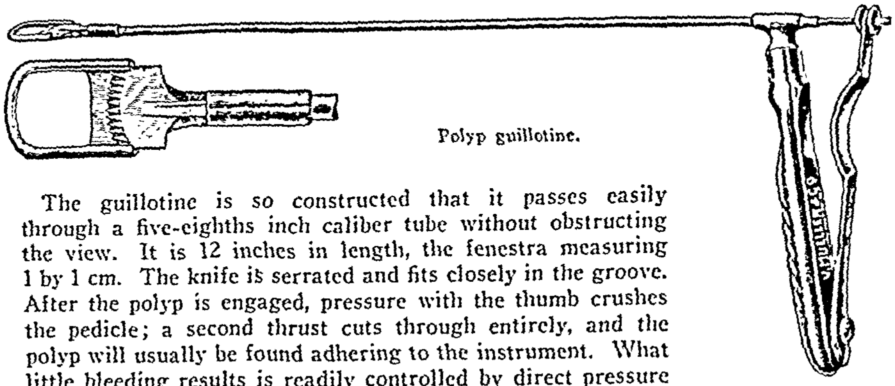
Clinical Notes, Suggestions, and New Instruments

POLYP GUILLOTINE

H. W. Soper, M.D., St. Louis

The polyp guillotine is designed to replace the wire snare in the removal of polypi from the rectum and rectosigmoid region. The disadvantages of the wire snare may be thus enumerated:

1. It is an instrument difficult to keep in order.
2. A polyp with a tough connective tissue stem will require a considerable degree of traction, and the mucosa is often lacerated to quite a degree.


Polyp guillotine.

The guillotine is so constructed that it passes easily through a five-eighths inch caliber tube without obstructing the view. It is 12 inches in length, the fenestra measuring 1 by 1 cm. The knife is serrated and fits closely in the groove. After the polyp is engaged, pressure with the thumb crushes the pedicle; a second thrust cuts through entirely, and the polyp will usually be found adhering to the instrument. What little bleeding results is readily controlled by direct pressure with a cotton applicator moistened in epinephrin solution. Healing is so rapid that it is difficult to locate the former site of the polyp two days later. After the instrument has been cleaned, the end containing the blade and fenestra should be dipped in three in one oil to prevent rusting.

The instrument makers have also designed two sizes of the guillotine to fit the universal handle for nose and throat work. This handle obstructs the view in sigmoidoscopic work, but the instrument as illustrated will be found to permit a clear, unobstructed view.

3701 Westminster Place.

RUPTURED OVARIAN CYST WITH SERUM RASH

John P. Kennedy, M.D., Charlotte, N. C.

A married woman, aged 25, was taken suddenly ill, at 11 a. m., with severe pain in the epigastrium. The pain was constant and radiated to the upper part of the back between the shoulder blades. Three hypodermic injections of morphin and chloroform were required for its relief. At 11:30 the leukocyte count was 16,000. At 2:30 it was 20,000. During the day the patient vomited three times, and in the afternoon she had a chill. She began to complain of pain in the right shoulder and soreness all over the body except in the hands and feet. By late afternoon, she had an eruption about the neck, upper part of the chest, and shoulders. The morning of the second day, she had a dull pain in the epigastrium and general soreness over the abdomen. At 9:30 a. m. on the second day the leukocyte count had reached 34,000. The pain in the right shoulder had disappeared, and the patient complained of a similar pain in the left knee. The rash persisted.

The patient had pneumonia twice when she was a child. She had been well and strong since that time. She had been married three years and had a baby 2 years old. The menstrual periods had been regular, and the last before admission, May 22, occurred April 28. During the previous four or five months, her periods had been a week later each time, but she had not missed any. During the two weeks before admission she had been troubled with constipation, which had not been the case prior to this time. During that time she had also been troubled daily with frequent painful urination. This was mostly at night and in the early morning. When up during the day she had no trouble with urination.

In the examination twenty-two hours after the onset of the illness, she appeared quite ill. There was marked circumoral pallor. The pulse was regular and 28 beats to the quarter. The heart sounds were clear and tumultuous. The second pulmonic sound was accentuated. The chest was normal. The abdomen was symmetrically distended. Breathing was confined almost entirely to the thorax. On auscultation over the abdomen, no peristalsis was heard. There was considerable tenderness and muscle spasm over the whole abdomen. Bimanual examination showed slight tenderness in the right vault.

A catheterized specimen of urine showed a decided trace of albumin, 50 pus cells to the field and 40 red blood cells. White blood cells numbered 34,000.

We were unable to make a preoperative diagnosis in this case.

An operation twenty-four hours after the onset of symptoms showed the abdomen full of dark bloody serum which came from a large ruptured right ovarian cyst. The cyst was removed, and the patient made a normal convalescence.

Had the serum rash been rightly interpreted, this very obscure case could have been diagnosed prior to operation. The symptoms of serum absorption which this patient had, namely, the rash, joint pains and muscle soreness, in the presence of acute abdominal symptoms should lead one to suspect blood or serum in the abdominal cavity.

505 Professional Building.

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

DIPHTHERIA TOXIN-ANTITOXIN MIXTURE (See New and Nonofficial Remedies, 1925, p. 333).

Eli Lilly & Co., Indianapolis.

Diphtheria Toxin-Antitoxin Mixture 0.1 L+.—Each cubic centimeter contains 0.1 lethal dose of diphtheria toxin neutralized with the required amount of diphtheria antitoxin. Marketed in packages of three 1 Cc. vials; in packages of one 30 Cc. vial; in packages of ten vials, each containing three doses.

TYPHOID VACCINE (See New and Nonofficial Remedies, 1925, p. 360).

Eli Lilly & Co., Indianapolis.

Typhoid Mixed Vaccine, Prophylactic and Therapeutic (See New and Nonofficial Remedies, 1925, p. 363).—Also marketed in packages of three 1 Cc. vials; one, the first dose, containing 250 million each killed paratyphoid A and B, and 500 million killed typhoid bacilli; two, the second and third doses, containing 500 million each killed paratyphoid A and B, and 1,000 million killed typhoid bacilli.

GERMICIDAL DISCS OF POTASSIO-MERCURIC IODIDE-P. D. & CO.—Tablets containing potassium mercuric iodide, potassium iodide, and sodium bicarbonate, colored blue.

Actions, Uses and Dosage.—See potassium mercuric iodide (New and Nonofficial Remedies, 1925, p. 239).

Manufactured by Parke, Davis & Co., Detroit. No U. S. patent or trademark.

Germicidal Discs of Potassio-Mercuric Iodide No. 2-P. D. & Co.: Each tablet represents mercuric iodide, 0.0283 Gm. (⅜ grain); potassium iodide, 0.0283 Gm. (⅜ grain); sodium bicarbonate, 1.0368 Gm. (16 grains).

Germicidal Discs of Potassio-Mercuric Iodide No. 1-P. D. & Co.: Each tablet represents mercuric iodide, 0.1134 Gm. (1¾ grains); potassium iodide, 0.1134 Gm. (1¾ grains); sodium bicarbonate 2.9259 Gm. (45 grains).

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - - Chicago, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - - Five dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, AUGUST 15, 1925

THE ORIGIN OF UROBILIN

The changing opinions with respect to the genesis of the bile pigments have recently been reviewed in The Journal.[1] From the older conception that bilirubin is formed in the liver cells out of the blood pigment hemoglobin, the pendulum of belief has swung to the conclusion, now supported by highly convincing evidence, that this bile pigment can be generated outside of and independently of the hepatic tissue. Thus, the liver functions primarily, if not exclusively, as an organ of elimination for pigmentary substances, bilirubin and biliverdin, for which there is at present no known function. In the light of current indications, they may consequently be regarded as true excretory substances.

There is another closely related compound, urobilin, which has awakened considerable clinical interest ever since its discovery by Jaffé in 1869. In the urine, a colorless precursor, urobilinogen, or parent substance of this pigment, is frequently present. The chromogen is readily converted into the yellow urobilin. It is a common constituent of the feces, and before the identity of the two pigments was realized, the urobilin in the stools received a separate name, stercobilin. Urobilin makes its appearance in increased amounts in certain disorders; consequently, as might be expected, attempts have been made to assign diagnostic significance to such quantitative variations, and not a little effort has been expended in the search for adequate methods for the accurate estimation of the changes in urobilin output. From the speculative standpoint there have been, to quote a recent statement, "enterogenous, hepatogenous, histogenous, hematogenous, and even nephrogenous hypotheses of its genesis." Any one not given to the coining of such euphonious designations might be ready to confess the utter confusion that has attended the study of the subject.

It seems to be clearly established that urobilin or urobilinogen can be formed by bacterial reduction of bilirubin. This change has been brought about through anaerobes acting on bile in vitro; and one naturally suspects that it is a ready possibility in the alimentary tract, where conditions highly favorable to putrefactive bacterial changes commonly exist. Consequently, the most frequently quoted opinion assumes such a bacterial origin for urobilin, with the added hypothesis that the bacterial product is in part absorbed. This would account for the finding of urobilin pigment in the stools, on the one hand; and it would permit reexcretion of the substance either in the bile or in the urine—in both of which it may at times be found.

An energetic student of pigment metabolism, G. H. Whipple,[2] has taken exception to the theory of the enteric origin of urobilin. He refers to what he regards as a fundamental error, unfortunately firmly fixed in the minds of clinicians and laboratory workers—the belief that stercobilin or urobilin is absorbed from the intestine. We know of no evidence of any sort, Whipple has stated, to indicate that urobilin or bile pigments are absorbed from the intestine, once we grant that urobilin may be present at times in the bile within the bile ducts. He believes that urobilin is formed in the liver, particularly in abnormal conditions of the biliary tract (cholangeitis), but knows of no evidence that it is absorbed from the intestine.

From the clinician's standpoint it would obviously be of considerable significance if urobilin were conclusively demonstrated, rather than merely suspected, to be a product of disordered hepatic function. Investigations at the Rockefeller Institute for Medical Research make this seem unlikely, however. McMaster and Elman[3] have succeeded in diverting the bile completely for long periods from the alimentary tract and at the same time avoiding any bacterial contamination of the biliary tracts. Under such conditions, urobilin disappears from feces, urine and bile. Hence, we are assured, it is demonstrated that the existence of urobilin in any of these depends on a delivery of the bile itself or, to speak more precisely, of bilirubin to the intestine either through normal channels or through the mouth. In the New York experiments, total obstruction of the bile flow caused disappearance of the urobilin from the bile and the stool. Later, with the development of severe jaundice, the pigment appeared again in very small quantity in the feces. Necropsy at such times showed that the intestinal mucosa was deeply tinted with bilirubin, some of which undoubtedly had passed into the lumen of the bowel and had there been changed to urobilin. The sequence of changes from hemoglobin to bile pigment to urobilinogen seems at length to be clearly established, the last stage in the transformation being relegated more conclusively than ever before to the bowel, where bacteria are the responsible agents in its production from bilirubin.

---

[1] The Formation of Bile Pigment, editorial, J. A. M. A. **85**: 271 (July 25) 1925.

[2] Whipple, G. H.: The Origin and Significance of the Constituents of the Bile, Physiol. Rev. **2**: 440 (July) 1922.

[3] Elman, R., and McMaster, P. D.: Studies on Urobilin Physiology and Pathology, I, The Quantitative Determination of Urobilin, J. Exper. Med. **41**: 503 (April) 1925; II, Derivation of Urobilin, ibid., p. 513.

WHERE DOES FIBRINOGEN ARISE?

There are few protective devices of the organism more beneficent than the reaction by which fibrinogen, the soluble protein of the circulating blood, is transformed into the insoluble fibrin, which forms the basis of blood clots and prevents continued hemorrhage after injury to blood vessels. Now and then the clot-forming mechanism fails for some reason; and not a little consideration has been devoted in the past to the possible factors concerned in extravascular coagulation, that the occurrence of the latter might be assured or promoted whenever the normal course of the process was threatened. Thus, it has become known that calcium is somehow involved in the chemical transformations leading to clot formation; and other agencies, respectively promoting or inhibiting it, may be involved in addition to fibrinogen. The latter is obviously the factor of preeminent importance and consequently one with respect to which our information should be made as complete as possible.

Strangely enough, there has on the contrary been much confusion and uncertainty regarding the place in which the fibrin percursor is formed. To name the organs that have been alleged to be concerned with the genesis of fibrinogen might seem like the recital of a list of all the important tissues of the body. Whipple[1] and his associates have demonstrated that fibrinogen is very labile and that its fluctuations are due to a variety of stimuli, in contrast to the remarkable stability and stabilizing value of the serum proteins. Fibrinogen is further different in that the evidence regarding it speaks for constant manufacture and utilization of this fibrin former in the body. Tissue injury and inflammation exert a powerful stimulus on fibrinogen production and cause prompt and notable increase in fibrin values. Bacteria are not directly concerned in this reaction, which is identical whether a sterile or a septic inflammation is present. The only condition, according to Foster and Whipple, which without exception causes or is associated with low fibrin values is acute extensive liver injury such as is brought about by intoxication with chloroform and phosphorus. The uniformity of this reaction is said to be of great significance, especially the remarkable parallelism demonstrable between the extent of the liver injury and the depression in fibrin values. Slight liver injury will cause a rise in blood fibrin values, like tissue injury elsewhere in the body; but when the injury is extreme and acute, a prompt fall invariably ensues.

Foster and Whipple have consequently regarded the liver as the only actively productive source of fibrinogen, although there may be certain limited reserve supplies in other body tissues. They admit that there may be certain depots of fibrinogen or its parent substance in certain body tissues other than the liver, but this reserve is probably not large. Further evidence pointing to the hepatic tissue as the site of origin of fibrinogen has been offered from Stanford University by Schultz, Nicholes and Schaefer.[2] In studies on animals, they found that liver necrosis produced a decrease in fibrinogen in the blood; and the content of the clot-producing protein could be made to vary in relation to influences that manifestly affect the liver. The normal content of fibrinogen is small at best, amounting to from 250 to 500 mg. for each hundred cubic centimeters of blood. Obviously, the total amount of this labile substance is not large, and it therefore appears to require no profound destructive agency to reduce the quantity to low limits that may become threatening to the circulation.

TISSUE ACIDOSIS

The history of the physiologic sciences affords numerous illustrations of how the pendulum of belief swings from one extreme of impression to another, with an ultimate return to a position of greater equilibrium warranted by the dissipation of untenable views. Not long ago, one frequently heard comments by medical writers about the "acid condition" of the body; the layman might be heard amplifying this into a statement that the blood of some person was "too acid." Under such circumstances there was the presumably logical endeavor to avoid sources of acid, the list of so-called acid foods in particular being vigorously proscribed. The theories underlying these features seemed to receive considerable substantiation when the existence of actual acidosis represented by the production of organic acids in diabetes and other pathologic conditions was clearly demonstrated.

Presently, however, came the equally cogent demonstration that a change in the reaction of the blood, in the sense of noteworthy increased hydrogen ion concentration, is among the rarities of physiologic experience. There has come a growing appreciation of the marked efficiency of the neutrality regulation of the organism whereby the reaction of the fluids bathing the cells and tissues is kept remarkably constant. Even when the urine shows an output of acid products in abnormal quantity, the blood usually shows a compensated p_H. Studies of Rous and Drury[3] at the Rockefeller Institute for Medical Research indicate, however, that an extensive tissue acidosis involving a marked local change in hydrogen ion concentration can coexist in an organism with a blood that is unchanged in its p_H

---

[1] Foster, D P., and Whipple, G H.: Blood Fibrin Studies, I, An Accurate Method for the Quantitative Analysis of Blood Fibrin in Small Amounts of Blood, Am. J. Physiol. **58**: 365 (Jan.) 1922; II, Normal Fibrin Values and the Influence of Diet, ibid., p. 379; III, Fibrin Values Influenced by Transfusion, Hemorrhage, Plasma Depletion and Blood Pressure Changes, ibid, p 393; IV, Fibrin Values Influenced by Cell Injury, Inflammation, Intoxication, Liver Injury and the Eck Fistula, ibid, p. 407.

[2] Schultz, E. W.; Nicholes, J. K., and Schaefer, J. H.: Studies on Blood Fibrin, Am. J. Path. **1**: 101 (Jan.) 1925.

[3] Rous, Peyton; and Drury, D. R: Outlying Acidosis, J. A. M. A. **85**: 33 (July 4) 1925.

the trade. With all parties concerned—the worker, the employer, the public—thus awakened to the duty as well as necessity of first learning the truth as a ground for action in the cause of common welfare, a pattern for good citizenship is furnished that is applicable in many fields of human endeavor. And as Frankel [2] has recently pointed out, when all is said and done, when working conditions in the plant are made as favorable as possible, industry cannot entirely reckon without the individual himself. No matter how modernly equipped a plant may be, the health of the worker is not assured by this fact alone. The employer may guarantee healthful surroundings for eight hours of his day, but the workman himself has his other sixteen hours in charge. These must be lived according to the rules of health if the workman is to find himself at his best. The great task which the public health movement faces at the present time, Frankel concludes, is the need for stressing the individual's personal responsibility for his own health.

THE NEUTROIDS FRAUD

Nearly three years ago an article appeared in the propaganda department of The Journal regarding a fake obesity cure under the name of "Neutroids," put out by one R. Lincoln Graham. The Neutroids scheme was to the effect, briefly, (1) that Graham was "an eminent physician — a stomach specialist who has obtained exceptional honors in his profession," (2) that he had discovered "the real cause of fat," (3) that "obesity is brought about by an overdevelopment of alcohol in the digestive tract" and (4) that Graham had discovered a method of preventing the overdevelopment of alcohol by the administration of the product he called Neutroids. This was the thesis on which the exploitation of Neutroids was based. The scheme was essentially a mail-order fraud. There was some supplementary hokum used in connection with it, such as the "expert" opinion of "Edward F. Bowers, M.D.," who isn't a doctor and never has been, although for years he has written articles and held himself out as a doctor of medicine. Those who follow quackery closely noticed a year or so ago that Graham's nostrum was being sold through drug stores as well as on the mail-order plan. In view of its fraudulent character this was a wise move, because when quacks are willing to split their profits with retail druggists, they can continue in business with less risk than when they try to sell drugs through the mails. In due course the postal authorities got around to Graham and his "Neutroids." They collected evidence showing that Graham was *not* an eminent physician, that he had *not* discovered the cause of obesity, that obesity was *not* due to the overdevelopment of alcohol in the digestive tract and that "Neutroids" would *not* cure obesity as claimed. All of these facts had, of course, been brought out in The Journal's article in September, 1922. When the government in May, 1925, called on the Graham outfit to show cause why a fraud order should not be issued, the concern meekly consented to sign an affidavit swearing that they would absolutely discontinue and abandon business conducted through the U. S. mails. This affidavit was signed by Robert Lincoln Graham and Theodore K. Graham, the latter being in charge of the mail-order department, as well as by Lloyd I. Volckening and L. L. Salfisberg, president and secretary, respectively, of the Graham fakery. The present status of affairs is that Graham can no longer swindle the public through the United States mails. If done at all, it must be through the agency of such retail druggists as are willing to cater to this kind of quackery.

MEDICAL EDUCATION AND THE GOVERNOR OF MISSOURI

It takes longer to get out of trouble than to get into it. The states of Connecticut and Missouri, which have been wallowing in a mire of mismanagement so far as the licensing of physicians is concerned, are finding out the truth of this aphorism. Physicians have been regaled frequently during the last few years with accounts of the difficulties in the states mentioned. The latest scandal appears to be a direct outcropping of the investigation by which the Kansas City College of Medicine and Surgery was first brought into the limelight. According to available reports, the attorneys for the college, in reply to ouster proceedings in the supreme court of the state, assailed Dr. Emmett P. North, president of the state medical society and of the state board of health, and Dr. Cortez F. Enloe of Jefferson City, a member. They allege further that Dr. R. B. Horton of Purdy, Mo., a former graduate of the college, had received money from other graduates for supposed influence with Dr. Enloe, who was at the time secretary of the board. Dr. North and Dr. James Stewart, present secretary of the board, after looking into the matter, have apparently felt that sufficient evidence existed to warrant a demand for the resignation of Dr. Enloe from the board, at least pending a clearing up of the charges made against him. In their action they have the complete support of the state medical society. Now Dr. Enloe is a close friend and political adviser of the governor of the state and, indeed, is credited with having been his chief lieutenant in the campaign that led to his nomination and election. He was rewarded, furthermore, by what is considered the choicest billet at the disposal of the governor in the distribution of patronage, namely, the directorship of the state penal board, which carries with it free occupancy of a state mansion, with servants, light, heat and other perquisites supplied by the state. The record of Dr. Horton in medical educational affairs is also apparently shadowed by political intrigue. In response to the demand for Dr. Enloe's resignation, Governor Baker has been wavering between loyalty to his friend and his duty to the people of the state, who are the sufferers by the licensing of unqualified men. This vacillation resulted in his refusal to ask Enloe outright for a statement, in his directing Drs. North and Stewart to visit Enloe, in his support of Enloe's refusal to resign, and finally in his issuing a statement to the effect that "all the matters concerned in this controversy occurred before I became governor, and I cannot become excited about them." In the meantime the remaining members of the state board of health issued an ultimatum stating that they would resign unless Dr. Enloe did. They then found themselves in the predicament of having either to renounce their ultimatum or to permit the governor and Dr. Enloe to appoint in their places men who might well succeed in covering up the whole situation as soon as they were in office. Thus stands the situation as we go to press. Time and again the history of government in the United States has shown that politics and honest public health administration can never mix to the advantage of the people. Those executives who have insisted that their health departments and divisions of medical education be conducted without reference to patronage have invariably succeeded in obtaining the confidence and the support of the public. If Governor Baker is far-sighted he will purge Missouri at once of the noisome mess, whether or not it is a heritage from a previous administration.

---

[2] Frankel, L. K.: The Health of the Worker, Hygeia 3:217 (April) 1925.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Chiropractor in Contempt of Court.—R. B. Harris, chiropractor of Gordo, was sentenced to five days in the Carrollton County jail, July 24, and fined $25, for contempt of court. Harris was recently indicted for practicing chiropractic in violation of the law and fined. He continued to practice, however, and quo warranto proceedings were instituted against him by the Pickens County Medical Society. Judge McKinley then ordered Harris to cease practice, and this he refused to do.

ARKANSAS

Personal.—Dr. Francis M. Smith, Franklinton, La., has arrived in Pine Bluff, to assume the duties of full-time health officer of Jefferson County.

Typhoid Fever Outbreak.—The Pulaski County Board of Health, July 25, condemned the waters of Maumelle Creek as insanitary and dangerous. The order affects five small bathing resorts along the mountain stream. In the previous week five new cases of typhoid fever were reported, and the total now, it is reported, has reached the proportions of an epidemic.

CALIFORNIA

Society News.—Dr. Kasper Pischel, San Francisco, has been elected president of the Pacific Coast Oto-Ophthalmological Society, and San Francisco chosen as the place of meeting in 1926.

Lane Lectures Postponed.—The dean of Stanford University School of Medicine writes that the Lane Medical Lectures to be given by Professor Putti will be postponed until November 9 (The Journal, August 1, p. 362).

Chemist Fined.—Charles I. Aycock, Los Angeles, a chemist, was found guilty of violating the state medical act, July 29, and fined $100. It was brought out at the hearing, it is reported, that Aycock had been treating tuberculosis patients.

CONNECTICUT

Supreme Court Upholds Revocation of Licenses.—The Supreme Court of Errors of Connecticut has upheld the revocation by the state board of health of the licenses to practice of sixty-eight eclectic physicians at the instance of a special grand jury. In the court's decision, the appeals of five physicians from the finding of the superior court were denied. The supreme court's decision clears a situation which arose in June, when the debarred eclectic physicians, it is reported, seized control of the state eclectic society and by that means of the eclectic examining board, and ordered the state board of health to restore the licenses of fifty-five physicians.

Well Child Conferences.—There were 837 children in attendance at the Well Child Conferences conducted by the state department of health and local communities in June. The response to these conferences has been such as to warrant making them permanent, but with the personnel available it is impossible to hold them monthly in outlying districts; they alternate, therefore, some being held every third month; this makes it possible for mothers in forty towns to receive instruction. Local or state physicians are always in attendance; of the total number who attended conferences in June, 172 were referred to their family physician. There was a conference at Somersville, August 11; Colchester and New Hartford, August 13; and at Kensington and Thompsonville, August 14.

DISTRICT OF COLUMBIA

Personal.—R. L. Kahn, D.Sc., of the Michigan Department of Health, Lansing, was on active duty at the Army Medical School, Washington, D. C., July 5-19, as a reserve officer in connection with the Kahn test. Dr. Kahn spent ten days at the Naval Medical School also at the request of Surgeon General Stitt, assisting the laboratory division in planning to employ the Kahn test in the navy, and demonstrating the test before representatives of hospital laboratories and the George Washington Medical School.

IDAHO

Hospital News.—Lava Hot Springs has opened a new municipal sanatorium. The capacity is thirty beds, and the staff includes Dr. Ellis Kackley, superintendent; Dr. Cyril A. Rich, resident surgeon, and Dr. Dorothy N. A. Rich, superintendent of nurses.——The Lewis and Clark Hospital, Spirit Lake, will be enlarged soon to double its present capacity.

State Medical Meeting.—The annual meeting of the Idaho Medical Association will be at Pocatello, September 3-5. Among the speakers will be Dr. Edward Jackson, Denver, "Examination and Management of Recent Injuries to the Eye"; Dr. Russell D. Carmen, Mayo Clinic, Rochester, Minn., "Roentgenologic Diagnosis of Peptic Ulcer"; Dr. William F. Braasch, Mayo Clinic, Rochester, Minn.; Drs. Walter C. Alvarez, Frank W. Lynch and Wallace I. Terry, all of San Francisco; Dr. Julius H. Hess, Chicago; Dr. George B. Eusterman, Rochester, Minn.; Dr. George A. Downs, Spokane, Wash., and Dr. Ernest Sachs, St. Louis.

ILLINOIS

Meeting of Military Surgeons.—The Association of Military Surgeons of Illinois will meet at Camp Grant, Rockford, Sunday, August 23, when members will be guests of the medical officers of the division at a dinner at headquarters of the One Hundred and Eighth Medical Regiment. A chemical warfare demonstration and field day has been arranged for the afternoon. Ambulances will meet incoming trains at Rockford to transport officers to the camp, and all medical officers and former officers of the army and reserve corps are invited. It is requested that those intending to be present notify the secretary, Dr. Alfred de Roulet, 7 West Madison Street, Chicago.

Appointments to Professorships.—The Board of Trustees of the University of Illinois, at a meeting in Chicago, July 28, established the office of director of research in the Research and Educational Hospital and appointed Dr. David J. Davis, Chicago, to that position. Dr. Charles S. Williamson was appointed professor and head of the department of medicine (on half-time basis) beginning September 1; Dr. Francis E. Senear, professor and head of the department of dermatology (on half-time basis); Dr. Norval H. Pierce, professor and head of the department of otolaryngology (on half-time basis); Dr. Edward V. L. Brown, professor and head of the department of ophthalmology; Dr. Julius H. Hess, professor and head of the division of pediatrics, and Dr. Herman M. Adler, professor and head of the department of social hygiene, criminology and medical jurisprudence, for one year, beginning September 1. The last three appointments noted are without salary. No appointments were reported for the positions of professor and head of the division of neurology and psychiatry, professor and head of the department of obstetrics, and professor and head of the department of surgery.

Chicago

Hospital News.—The Children's Memorial Hospital, 735 Fullerton Avenue, has taken out a permit for a five story building, the Martha Wilson Memorial.

Tuberculosis Institute.—The Chicago Tuberculosis Institute, which has eighteen health centers at which clinics are held, plans now to add to its staff a laboratory diagnostician who will have an office and laboratory at the Oak Park Health Center.

INDIANA

School Medical Inspection at Fort Wayne.—Seven physicians have been named by the school board to administer the new medical inspection plan at the beginning of the school year in Fort Wayne. Every school in the city will be visited each morning by one of the physicians to determine the health status of the pupils. The examiners appointed are Drs. Donald D. Johnston, Claude A. Savage, James L. Wyatt, Louis P. Harshman, Ben P. Weaver and Emor L. Cartwright.

Attempt to Oust Dr. King.—Dr. William F. King, secretary, state board of health, was notified to appear before a special session of the board at Indianapolis, August 10, to consider the question of his removal from office on a charge of malfeasance in office in certifying certain increases of salaries to employees not authorized by the board, and in engaging in "outside business" for profit. The outside business referred, it is reported, to charges amounting to about $300 a month for copying certain vital statistics for the federal census bureau. Judge Givan issued a temporary injunction, August 8, restraining four members of the state board from prosecuting the charge of malfeasance, and the hearing was postponed indefinitely by the president of the board, on advice of Governor Jackson. According to the Indianapolis *Star,* the governor considers that the health board had no right to attempt to impeach Dr. King and regards the charges against him as unfounded.

IOWA

Smallpox at Cedar Rapids.—There were fifty-five cases of smallpox at Cedar Rapids in April, May and June, and twelve deaths. With the cooperation of the city officials, the medical profession and the newspapers, a vaccination campaign was carried on and about 40,000 of the 50,000 people in the city have been vaccinated. There were still in quarantine, July 1, according to the state commissioner of health, fifteen cases of smallpox.

KENTUCKY

Report of Community Chest Survey.—The report of the survey of hospitals and health agencies in Louisville, made by Dr. Haven Emerson, New York, and Miss Anna C. Phillips between April 28 and July 12, 1924, has just been published. The survey was made for the Health and Hospital Survey Committee of the Louisville Community Chest, and cost, including preparation for publication, $5,768.48. The report is in five sections: (1) the community of Louisville in 1924; (2) services for health and its protection; (3) services for the sick; (4) recommendations; (5) forms and lists. Among the general policies recommended were the appointment of a city and county board of health with not less than five members by the mayor and the fiscal court to direct the policies of the health department; the creation of a city and county administrative health unit, to be in charge of a full-time qualified health officer secured in his position by civil service and having jurisdiction over both city and county; the creation of a board of trustees for the City Hospital of from five to eleven members, appointed by the mayor to serve the city for all the hospitals, dispensaries, etc., supported by taxes; the construction of a new isolation building and an outpatient building at the City Hospital; the support of psychologic and dental clinics out of city taxes instead of by private funds and the transfer of both to the City Hospital Dispensary; payment by the city for such work of the Public Health Nursing Association as is definitely of a public health nature, and for the home care among the indigent poor who are a proper public charge when sick; the creation of a Central Committee on Health Education to prepare a program of continuous education which shall not be limited to any one aspect of health work. Recommendations as to the health department were: provision for the establishment of a division of vital statistics and epidemiology, and the exchange of reports of births, deaths and communicable diseases by the city and state departments of health; the establishment of a division of tuberculosis, and of a division of nursing; that the appropriations for the department of health be increased gradually until the community provides at least $1 per capita for the work of the health department instead of 34 cents as at present, and that the entire personnel be put on a civil service status. Recommendations as to the community chest included the establishment of a health and hospital council; encouragement of the construction of a home or hospital for convalescent patients; the development of facilities now available for incurables; the appointment of a committee to study the needs for additional outpatient or dispensary service, and the establishment of a medical social service in connection with the Children's Free Hospital and Red Cross Sanatorium. An encouraging feature of the situation in Louisville, the report says, is that those in charge of the City Hospital and the three private hospitals included in the survey threw open their doors to the fullest investigation. In addressing itself to the president, the community chest committee asked that early steps be taken for the creation of a health and hospital council for the city and county, and of the nonpartisan board of trustees for the City Hospital.

MICHIGAN

Sternberg Medal. — The widow of the late George M. Sternberg, at one time Surgeon General of the United States Army, has donated to the University of Michigan Medical School, Ann Arbor, a sum of money, the interest of which is to be used for a medal to be awarded to the student who during his course has made the best record in preventive medicine.

New Medical Building.—The University of Michigan's new medical building will be ready for occupancy at the beginning of the college year. It will furnish room for the departments of anatomy, bacteriology and physiology, and in each department the undergraduate laboratories will accommodate at least 200 students in each of the preclinical years. Each department is also supplied with several laboratories fully equipped for graduate students. The old medical laboratory building will permit enlarging the laboratories of pathology, physiologic chemistry and hygiene and public health.

Postgraduate Medical Conferences.—The Michigan State Medical Society held a postgraduate conference in Sault Ste. Marie, July 10-25, in which, instead of the usual papers, there were practical talks. Dr. Phil L. Marsh spoke on "Physical Examinations and Diabetes"; Dr. Martin A. Mortensen, Battle Creek, on "Hypertension and Examination of the Heart"; Dr. George V. A. Brown, Detroit, on "Appendicitis in Children"; Dr. Homer T. Clay, Grand Rapids, on "Problems in Infant Feeding," and Dr. George H. Ramsey on "Toxins and Antitoxins."——There was a postgraduate conference at Petoskey, June 25, which was attended by physicians from eighteen cities and villages, and to which several traveled more than 100 miles. No meeting of the physicians of that region in northwest Michigan had been held for more than five years, and representatives of the various counties took steps to form a medical society, and requested the council of the Michigan State Medical Society to act favorably on their recommendations. Temporary officers were elected, an executive committee appointed, and other plans made to cooperate with the state society and adjoining county societies. Among those who spoke were Dr. Udo J. Wile, Ann Arbor, on "The Modern Treatment of Venereal Infections and Treatment of Eczema and Allied Skin Lesions"; Dr. Charles E. Boys, Kalamazoo, on "Goiter," and Dr. Don Hastings Duffie, Central Lake, on "Diabetes." ——More than 100 physicians and laymen of the northern peninsula attended the four postgraduate conferences held at Escanaba, Marquette, Houghton and the Soo, July 7-10.

MINNESOTA

Medical Officers' Camp.—There were 360 medical officers of the Army Medical Officers Reserve in training at the camp at Fort Snelling. Prizes, of $50 and $25 each, were donated by the Fort Snelling Medical Training Association for the best essay written by R. O. T. C. students that were in camp on "The Medical Regiment in Combat." The essays must be between 4,000 and 6,000 words in length, exclusive of tables and diagrams, signed by the authors with a nom-de-plume and submitted to the corps area surgeon, Omaha, for transmittal to the Surgeon General not later than September 15.

Report of Commission.—The advisory commission of the State Sanatorium for Consumptives was established in 1901 to investigate and recommend regarding the advisability of establishing a state sanatorium, over the control of which the commission exercised duties of an advisory nature. The legislature authorized in 1913 the establishment of county sanatoriums and created a fund to assist counties in maintaining these institutions. The expenditure of the fund was placed under the advisory commission. A report has just been issued by the commission giving an account of its stewardship from the date of its establishment to June, 1924. Among other things, the volume includes a report of each county sanatorium illustrated by halftones and plans showing the layout of the institutions.

MISSOURI

Report of Defense Committee.—Twenty-one cases were pending before the defense committee of the Missouri State Medical Association, May 6, 1924, and there were ten new cases during the year preceding the last report of the committee to the house of delegates at Kansas City. Eleven cases were settled, one was a threat, and nineteen were still pending at the time of the report. Five of the eleven cases settled were dismissed; four verdicts were rendered for the defendants and two for the plaintiffs. In the two verdicts for the plaintiff, one was a judgment of $550, and the other a verdict of $10,000 against the defendant and his associate. Among the nineteen cases pending, verdicts for the plaintiff have been rendered in three, one for $20,000, another for $2,500 and another for $4,500, all of which have been appealed. The chairman of the committee said that of the many factors which go to make up a malpractice suit, one of the things nearly always present is the fact that there is a "doctor behind it" who may or may not have gotten into the case intentionally. The secretary urges that physicians be especially careful about their conversation to patients who have come to them after having been recently treated by another physician.

Suit to Oust Diploma Mills.—In the quo warranto suits filed in the supreme court by Attorney General Otto to close permanently the medical diploma mills in Missouri, proceedings were instituted against the St. Louis College of Physicians and Surgeons and the Kansas City College of Medicine and Surgery. Against each of these schools the attorney general specified eight charges, and against the latter school four additional charges. It is charged that both schools (1) have failed to keep fair and intelligent records of their proceedings; (2) that they are maintained purely for private benefit and profit contrary to their charters; (3) that they have been engaged in unlawful barter and sale of medical diplomas and high school certificates; (4) that the instruction offered to students was given by incompetent persons; (5) that they have operated under their charters as scientific medical schools but are using that privilege as a mere subterfuge for private gain; (6) that they have failed to maintain a proper curriculum covering four years of instruction; (7) that they have failed to provide any dispensary or hospital connection for the instruction of students, and (8) that for the last three years they have failed to publish a descriptive catalog of the course of study. The attorney general charges, in addition, (1) that the Kansas City College of Medicine and Surgery is guilty of using its charter as a benevolent institution to avoid the payment of taxes; (2) that the secretary, Dale R. Alexander, declared that the school would continue to operate even if necessary to hire a student to attend and thus enable the institution to continue issuing "honorary degrees" as a means of profit; (3) that the degree of doctor of divinity has been sold and issued to persons who were not and never had been clergymen, and (4) that the misuse of the rights granted the school by its charter was an unlawful usurpation of privileges not granted and was harmful and injurious to the public. The St. Louis College of Physicians and Surgeons filed a demurrer in the supreme court, asking dismissal of the charges. The assistant attorney general then filed an application asking the court to appoint a special commission to take testimony in that case. The Kansas City College of Medicine and Surgery was granted until August 5 to file an answer to the charges. The attorney general has directed his assistant to prosecute these cases vigorously. They will be heard in the October term of court.

NEW JERSEY

Typhoid Fever Suit.—Halsey Beatty filed a suit, July 27, against the Borough of Franklin and the Liondale Dye Works of Rockaway for $50,000 damages for suffering due to typhoid contracted during an epidemic about three years ago. Beatty complained that the dye works employed a man who was known to be a typhoid carrier and that they polluted the Rockaway River, which supplies water to the Borough of Franklin, and that the borough authorities were negligent in making the water safe.

Illegal Practitioners Prosecuted.—The New Jersey State Board of Medical Examiners recently reported the prosecution of the following illegal practitioners: William McKinley Rau, John F. Malone, William J. Lenox and Philip Simon, all unlicensed chiropractors, were found guilty of practicing medicine without a license and a judgment entered for the penalty of $200 and costs in each case; Frank S. Mansolillo, a licensed chiropractor, was found guilty of practicing medicine, May 26, in that he used various electrical apparatus to treat disease, and a judgment was entered for a fine of $200 and costs; Reuben Sassaman, an unlicensed chiropractor, and Mary Rull, who conducted a Turkish bath, were convicted of practicing medicine without a license and judgment entered for the penalty and costs; Borrman F. Jones, an herb doctor, was convicted on the second charge of practicing medicine without a license and judgment entered for a fine of $500 and costs; William E. Clunn of Pitman, George Maza, George Coleman, C. Valentine Jilson and Ernest R. Tegen, all of Newark, and T. Harry Pound, Plainfield, all unlicensed chiropractors, recently either pleaded guilty or were convicted of practicing medicine without a license and fined; Alexander Berg, a minister of Trenton, pleaded guilty in April to practicing medicine without a license and paid the penalty; Anna Claxton, a saleslady for the Viavi Company, Newark, was convicted of practicing medicine without a license, in April, and judgment entered for the penalty; Emery Krausz, Perth Amboy and Giuseppe Gorga, recently pleaded guilty to practicing medicine without a license and paid the penalty and costs. This was the second charge for Gorga.

NEW YORK

Personal.—Dr. Frederick W. Sears, Syracuse District state health officer, has been requested to give one of the De Lamar Lectures at the School of Hygiene and Public Health of Johns Hopkins University, Baltimore.——Dr. Hiroshi Kusama, Japanese representative of the health section of the League of Nations, and a fellow of the International Health Board of the Rockefeller Foundation, is spending several weeks studying in the New York State Department of Health.

Welfare Station Records.—The welfare stations of Rochester, now in their twenty-ninth year, were established in 1896 as milk stations and were the first municipal stations of the kind in this country. There are nineteen welfare stations assigned to schools, each having a physician. When the city milk supply became reasonably safe the stations were converted into welfare stations. In the last two years the welfare stations have condensed the work of school medical inspection until a single card holds the health record of a child from the time he enters until he leaves school. It is intended now to add another card for his record from birth to entry in school.

Industrial Rehabilitation Experiment.—The construction of the Potts Memorial Hospital, Livingston, will provide one of the first institutions in the country devoted to industrial rehabilitation of tuberculous patients. If a patient is physically able to support his family, the opportunity will be given him; if not, agreeable employment in the institution will be found and the endowment fund used to make up the difference between his earning capacity and the necessary expense. A patient may bring his wife and children with him while he takes the treatment. There is a $1,000,000 endowment fund available and a seventy-six acre estate with farm buildings, livestock and gardens. The two dormitories and patients' cottage being erected now will be ready for occupancy about April, 1926. The carriage house will be converted into a workshop for wood carving, cabinet making, picture framing and jewelry work, and be the nucleus of other workshops in other trades. Among the members of the board of directors of the hospital are Dr. Lawrason Brown, Dr. John L. Edwards, Homer Folks, Dr. Charles J. Hatfield, Dr. Rhoda L. Howard, Dr. David R. Lyman and Dr. Harry A. Pattison (The Journal, August 1, p. 364).

New York City

Safeguarding Shellfish.—An amendment to the Metropolitan Sanitary Code, recently adopted by the board of health, requires that all diggers of shellfish in waters within the city of New York must have permits from the health department.

Society News.—Members of the Queens County Medical Society are "agitating" for the erection of a society building on Queens Boulevard.——Physicians in the Bronx are canvassing the possibility of a permanent building for the county society.

Hospital News.—A group of fifteen buildings at Creedmore, Long Island, for the State Hospital for the Insane, costing $3,300,000, will be completed within the next twenty months. The contract was awarded, July 30.——The new industrial clinic of the Beekman Street Hospital was opened, August 4.

NORTH CAROLINA

Gifts to Mars Hill College.—Friends have provided for establishing at Mars Hill College, Mars Hill, the Dr. W. F. Robinson Library for the general use of students and the community.——Dr. Willard P. Whittington, Asheville, has presented to the scientific department of Mars Hill College a roentgen-ray machine.

Hospital Given to Rutherford County.—Dr. and Mrs. Henry Norris have donated the Rutherford Hospital, including the building, equipment, their home and 200 acres of farm and park land in the outskirts of Rutherfordton, to Rutherford County to be used for hospital purposes in perpetuity. The deeds have been recorded and the formal transfer has been made. Dr. Norris will continue to live on the hospital grounds. A board of trustees has been named which is self-perpetuating. The hospital will continue to be operated by the staff. Included in the donation, says the Spartanburg *Sun*, was $100,000 worth of radium which had been donated to the hospital by Mr. J. C. Plonk of Hickory.

OHIO

Foreign Visitor.—Dr. Brunon A. Nowalkowski, professor in the State School of Hygiene, Warsaw, Poland, and a fellow of the International Health Board of the Rockefeller Foundation, is spending a month in Columbus with health officials studying methods, especially in industrial hygiene and medical services. Dr. Nowalkowski spent last year at Johns Hopkins University and will study the coming year at Harvard University.

Personal.—Dr. Mont Reid, associate professor of surgery, University of Cincinnati College of Medicine, who has been appointed professor of surgery at the Rockefeller Medical Institute, Peking, China, left for his new post, June 27.——Dr. George D. Lummis, Middletown, has again been reappointed by the governor as a member of the state public health council, which is the judicial and legislative branch of the state department of health.——Dr. William A. McIntosh, Oberlin, recently resigned as health officer of Lorain County.

Census of Crippled Children.—The new state law requires school enumerators to list accurately the names and addresses of all crippled children for certification to the juvenile judge before the third Saturday in August. The list is then certified to local health officers for examination of the children listed. Each child must be examined by the health commissioner, who reports whether the condition is "urgent, not urgent, minor conditions, normal mentality, feebleminded." One copy of the report goes to the state commissioner of health, another to the juvenile judge, who may on his own initiative, or on instructions from the state department of health, make the child a ward of the division of charities of the state welfare department for treatment.

Society News.—Dr. Clyde E. Shinkle addressed the Adams County Medical Society, West Union, July 1, on "Medicolegal Aspects of Insanity," and Dr. Joseph E. Pirrung on "Appendicitis in Children."——Judge C. W. Hofman, Cincinnati, recently addressed the Marion County Medical Society, Marion, on "The Challenge of the Child."——Dr. John P. Farson, Columbus, addressed the Athens County Medical Society, Nelsonville, July 7, on "Infantile Diarrhea."——Dr. Franklin C. Wagenhals, Columbus, addressed the Fairfield County Medical Society recently on "The Sequelae of Lethargic Encephalitis."——Dr. Louis Howard Schriver recently addressed the Hempstead Academy of Medicine, Portsmouth, on "The Present Status of the Treatment of Thyroid Diseases."

OREGON

State Medical Meeting.—The annual meeting of the Oregon State Medical Society will be at Medford, September 2-4. Among the guest speakers will be Dr. Oliver P. Kimball, Cleveland, "Recent Advances for Goiter Prevention," and Dr. Carl A. Hamann, Cleveland, "Some Features in the Diagnosis and Treatment of Gallbladder Diseases," and "Dry Clinics on Tumors of the Breast: Rectum and Neck." There will be a public health meeting in the evening, September 2, under the auspices of the Oregon Public Health League, whose membership is composed of the entire membership of the state medical society. The annual banquet will be September 3. Members are urged to bring their families and to make the trip to the Caves and Crater Lake before returning.

PENNSYLVANIA

Hospital News.—Work will soon be started on a $225,000 addition to the Westmoreland Hospital, Greensburg.

Society News.—Dr. Eldridge L. Eliason, professor of surgery, University of Pennsylvania School of Medicine, will address the September meeting of the Berks County Medical Society.——Dr. William H. Donnelly, associate professor of pediatrics, New York Post-Graduate Medical School, New York, recently addressed the Harrisburg Academy of Medicine on "Feeding Essentials."

Safeguarding Water Supplies.—The chief engineer of the state department of health reports that sixty-five chlorination devices have been installed in the state for water supplies, recently, making a total of 330 chlorination plants of a type which can be readily installed, serving 1,665,000 people. In the two years reported on sixteen new filter plants were put in operation in the state, making the total number of filtration plants 172, serving 4,500,000 people; others are under construction. The city of Washington faced a serious water shortage in the autumn of 1922 and the spring of 1923. The bureau of engineering of the state department of health, in cooperation with the city officials, the chamber of commerce, civic organizations, local newspapers and the citizens themselves established rigid water rations and more than 1,000 wells and springs were examined before they were approved as an additional water supply.

State Medical Meeting.—At the seventy-fifth annual session of the Medical Society of the State of Pennsylvania, to be held at Harrisburg, October 5-8, under the presidency of Dr. John Norman Henry, Philadelphia, among the speakers will be Dr. William D. Haggard, President of the American Medical Association; Dr. Royd R. Sayers, Washington, D. C., chief surgeon, Bureau of Mines, "Carbon Monoxid Poisoning"; Dr. John E. Talbot, Worcester, Mass., "Toxemias of Pregnancy (lantern demonstration)"; Dr. George Draper, New York, "Constitution and Disease"; Dr. Samuel W. Clausen, Rochester, N. Y., "Studies in Nephritis in Children"; Dr. Henry R. Geyelin, New York, "Recent Studies in Diabetes in Children." There will also be addresses by many prominent physicians of Pennsylvania. Dr. Alexander Lambert, New York, will address a public meeting in Fahnstock Hall, Thursday evening, on the "Value of Periodic Health Examinations."

Philadelphia

Hospital News.—The cornerstone of the Shriners' Hospital for Crippled Children was laid, June 24. The site is on Roosevelt Boulevard near Pennypack Park.

Camp Happy Buildings Opened.—City officials took part in the dedication of two new buildings, August 7, at Camp Happy, the city's camp for undernourished children, at Torresdale. The buildings are Kendrick Hall, a recreation room; and a hospital constructed by prisoners of the House of Correction at Holmesburg. A check for $500 was turned over to the welfare department, to be used for the purchase of comforts for the children.

Baby Clinics.—Clinics to "make well babies better" are being organized in seven community mothers' clubs of this city by the women of fifty-one Protestant churches. The work is being developed by Mrs. Jennie Griffith, social service secretary of the Philadelphia Federation of Churches. Cooperating with Mrs. Griffith is the child hygiene division of the department of city welfare, the mental hygiene division of the Public Charities Association of Pennsylvania, and the Child Guidance Clinic of the Children's Hospital. Physicians have agreed to give lectures to mothers throughout the city.

RHODE ISLAND

Personal.—Dr. Byron U. Richards was reelected president of the New England Medical Examining Board conference at the meeting held at Providence, June 16.——Dr. Creighton W. Skelton has been elected coroner of Cranston.——Dr. Julius A. Olean has resigned as assistant superintendent of the

City Hospital, Providence, to go to the New Haven Hospital to assist the professor of pediatrics, and will be succeeded by Dr. Roy W. Benton.——Dr. Alton S. Pope, who recently completed his internship at the City Hospital, Providence, will become assistant to Dr. Haven Emerson, School of Public Health, Columbia University, New York.

SOUTH CAROLINA

Infantile Paralysis.—With the report of six new cases of infantile paralysis, July 27, the total number of cases in the state in the recent epidemic had reached 125.

Hospital News.—Mr. Emslie Nicholson recently donated to the city of Union the entire property of the Wallace Thompson Hospital, valued at $80,000, as a memorial to his wife and sister.——St. Francis Xavier Infirmary, Charleston, is preparing to construct a new building, which will cost $150,000. ——Alexander Long, Sr., Rock Hill, has presented to the city property valued at $20,000 to use in establishing a city hospital.

TENNESSEE

Society News.—The Chattanooga and Hamilton County Medical Society contemplate the erection of a permanent home to cost about $15,000.——The Unicoy County Medical Society is planning to erect a hospital in Erwin.

Narcotic Reregistration Refused.—Dr. George F. Ryan, Chattanooga, has instituted proceedings in federal court to restrain the collector of internal revenue from enforcing a ruling that physicians convicted of violating the Harrison Narcotic Law cannot reregister under that law. Dr. Ryan recently pleaded guilty, it is reported, to an indictment charging violation of the Harrison Narcotic Law and was fined.

TEXAS

Personal.—Dr. Leon H. Martin, Austin, of the state department of health, has obtained a leave of absence to accept an appointment as director of public health and welfare of Fort Worth. Dr. Martin will be the first full-time health director of the city, it is reported.——Dr. Elliott M. Mendenhall has been elected director of the department of health in the city schools of Dallas. The proposed plans call for the employment of twelve nurses and the establishment of a dental clinic.

Sanitation in Colleges.—The Texas State Board of Health has mailed questionnaires to colleges and other institutions of higher learning in the state to obtain information concerning their water supplies, sewage disposal, swimming pools, heating devices, ventilation, dairies, food handlers, vaccination and medical supervision. The information is desired to forestall, if possible, preventable epidemics and to promote the health of students. The cooperation of the board has already been requested by many institutions in sanitation. Where an unsatisfactory sanitary condition is disclosed, the school authorities will be notified and requested to make corrections.

WASHINGTON

Osteopaths Are Not "Physicians or Surgeons."—The assistant attorney general of the state rendered an opinion to the state director of licenses to the effect that osteopaths are not permitted to purchase or use narcotic drugs under the terms of the law, which permits the purchase and use of these drugs "by any physician, dentist, surgeon or veterinarian." He held that the osteopathic license law distinguished between "osteopathic physician and surgeon" and "physician and surgeon" as these professions are usually recognized by requiring the use of the word "osteopathic" on all signs and other advertising matter which makes use of the words "physician" or "surgeon." The attorney general explained that both the state legislature and the state supreme court had held that the words "physician" and "surgeon" when not associated with any qualifying word or clause included only practitioners of the regular school.

WISCONSIN

Personal.—Dr. Eldo T. Ridgway, Elkhorn, has been appointed county physician of Walworth County to succeed the late Dr. E. Kinne.——Dr. Paul M. Currer has been elected president of the advisory board of the Milwaukee Emergency Hospital, the other members being Drs. Osville R. Lillie, Stephen Cahana, Eleanore Cushing-Lippitt, and Lewis C. Tisdale, all of Milwaukee.

State Medical Meeting.—The seventy-ninth annual meeting of the Wisconsin State Medical Society will be held in Milwaukee, September 16-18. It will be the fiftieth anniversary of the first legislative proposal by the society, and a fitting celebration will occur at the smoker this year in the Fern Room of the Hotel Pfister, at which Dr. Malcolm L. Harris, Chicago, chairman of the Judicial Council of the American Medical Association, will give an address. At the secretaries' luncheon on Thursday, Dr. Frederick C. Warnshuis, secretary of the Michigan State Medical Society, will speak, and Thursday evening the president, Dr. Wilson Cunningham, will give the president's address at the annual banquet and dance. Dr. Carl H. Davis, Milwaukee, is chairman of the committee on arrangements. Among the visiting speakers on the scientific program will be Dr. A. J. Carlson, professor of physiology, University of Chicago; Edward C. Kendall, Ph.D., University of Minnesota, Mayo Foundation; Dr. Goronwy O. Broun, St. Louis; Dr. Solomon Strouse, Chicago; Drs. Ursus B. Portmann and Thomas E. Jones, Cleveland, and Dr. Henry I. Bowditch, Boston.

WYOMING

State Medical Election.—At the annual meeting of the Wyoming State Medical Association, Buffalo, in June, Dr. Charles H. Platz, Casper, was elected president; Dr. Edwin Earl Whedon, Sheridan, secretary, and Dr. Evald Olson, Lovell, treasurer. The next meeting will be at Lander.

CANADA

New Member of the Board of Governors.—The minister of education has announced the appointment, among others, of Dr. Harry B. Anderson to the board of governors of the University of Toronto.

Society News.—At the meeting of the British Columbia Medical Association, Vancouver, July 3, a dinner was given at which Sir Henry M. W. Gray, McGill University, Montreal, Dr. Hugh Cabot, Boston, and Dr. James G. Carr, Jr., Chicago, were guests of honor, and at the close of which the following officers were elected for the coming year: Dr. William B. Burnett, Vancouver, president-elect; Dr. William A. Clark, New Westminster, vice president, and Dr. John H. MacDermot, Vancouver, secretary-treasurer. An increase in paid-up membership over last year was reported; the *Bulletin* of the association says that the reduction of the fee has been *justified by results.* A committee was appointed to investigate the comparative costs of the operating expenses of this association and those in other provinces, which will report at an early date, as the first step of a complete inquiry into the subject. It was decided to take steps to hold a conference between this association, the British Columbia Medical Council and the Vancouver Medical Association, with a view to discovering methods of economy in money and time and increased efficiency.

GENERAL

Number of Tuberculosis Associations.—There is a total of 1,155 tuberculosis associations in the United States, including state, county and municipal organizations; 308 of these associations employ a paid executive, 239 of whom are women and sixty-nine men; many of the larger associations employ a staff of paid workers also. There are 316 municipal tuberculosis associations, 787 county and fifty-two state associations, and, in addition, 383 special associations which are informal groups and committees, not definitely organized as tuberculosis associations, but which assist their state organizations in various campaigns.

Dr. Winslow Retires as Editor.—Charles Edward A. Winslow, D.Ph., professor of public health, Yale University School of Medicine, New Haven, Conn., will retire as editor of the *Nation's Health* with the August 15 issue, and be succeeded by Dr. Frank A. Rector, formerly secretary of the Conference Board of Physicians in Industry and medical investigator for the National Industrial Conference Board, New York. Dr. Winslow will be a member of the consultant editorial board which is being formed to assist the new editor in his work. The change has been made to overcome the difficulties of functioning with the editorial and publication offices in widely separated places.

Accidents at Coal Mines.—The department of commerce announces that in the first half of 1925 there was a loss of 1,089 lives in the coal mining industry, which is 239 less than for the first half of 1924. The fatality rate, based on the half year's production of coal, was 3.89 per million tons, as compared with 4.73 for the corresponding period last year. The explosion at Sturgis, Ky., June 8, with seventeen fatalities, brought the total number of major disasters in 1925 to eight, with a loss of 178 lives, as compared with six similar disasters with a loss of 398 lives in the first half of 1924. A comparison of the two years shows a reduction of nearly 50 per cent. in the per million ton rate from explosions of gas or dust, and a small reduction in the death rate from falls of roof and coal. The rate for accidents due to explosives, haulage and electricity increased slightly.

American Electrotherapeutic Association.—The presidential address at the thirty-fifth annual meeting of the American Electrotherapeutic Association, September 15-18, Chicago, will be delivered by Dr. William T. Johnson, Philadelphia, on "Factors in the Establishment of Sound Physiotherapeutic Practice." Among other speakers will be Dr. Foveau de Courmelles, Paris, France, on "Biologic Actions of Radiations"; Dr. Curran Pope, Louisville, Ky., on "Methods and Uses of the Cold Pack"; Dr. Richard Kovacs, New York, "Physical Therapy in Painful Shoulder Conditions"; Dr. Tilman Howard Plank, Chicago, "Electrocoagulation"; Dr. Harry E. Stewart, New Haven, Conn., "Placing Physiotherapy Before the General Profession"; Dr. Frank C. Balderrey, Buffalo, "Light and Some of Its Spectral Components in Therapeutics." There will be a demonstration of technic of the application of various kinds of electrical currents and phototherapy at the Drake Hotel, Thursday evening, by Drs. William B. Snow, Edward C. Titus, Fred de Kraft, Tilman Howard Plank and Richard Kovacs, and a physiotherapy clinic at Cook County Hospital (Ward 34), September 19, at 9 o'clock, at which diathermy in fractures will be demonstrated by Drs. John S. Coulter and Disraeli W. Kobak. There will be an exhibit of electrotherapeutic apparatus and accessories in the exhibit hall adjoining the assembly room. All legally licensed physicians are welcome.

LATIN AMERICA

Prizes for Theses.—The Hygienic Department of the International Exposition of Rosario, Argentine Republic, offers prizes for the best solution for the control of (1) tuberculosis; (2) infant mortality, and (3) syphilis. The first prize for each theme is 1,000 pesos, a diploma of honor and a gold medal; the second prize is a diploma of honor and a silver medal; and the third a diploma and a bronze medal; the fourth best essay will receive honorary mention. The essays must be presented to the committee not later than Oct. 30, 1925, and may be written in any language. The jury of award will comprise specialists and will make their deliberation before December 1. The best essay in each theme will be published and distributed to all governments and institutions represented at the congress. The government of the province of Rosario offers a special grand prize also for the best solution of the problem, "Sanitary Organization of Prostitutes and Inspecting the Same." The fee for enrolment is 20 pesos, which must be paid with application for admission. This exposition is fostered mainly for the purpose of fighting tuberculosis in Rosario. Dr. Anthony V. Partipilo, 3315 Milwaukee Avenue, Chicago, has been appointed to represent the hygienic department of the exposition.

FOREIGN

Prize in Gynecology.—According to the *Medical Journal of South Africa,* the widow of the late Dr. Paul Derbet has offered an annual prize of 1,000 francs, to be awarded by the Société de Chirurgie for the best work on a gynecologic subject. The typewritten manuscript should be sent to the general secretary, M. Barberrin, Avenue de Président Wilson, Paris.

International Congress of Radiology.—At the first International Congress of Radiology held, June 30-July 4, at London, England, under the presidency of Dr. Charles Thurstan Holland, an international committee was constituted comprising Prof. Görsta Forssell, Stockholm, Sweden; Dr. Charles Thurstan Holland, Liverpool, and Dr. Stanley Melville, 9 Chandos Street, London, W. 1, secretary. The next international congress will be in Stockholm in 1928.

New Medical Building at Melbourne.—The Victorian Branch of the British Medical Association opened its new building, erected on the site of the former society hall at Brunswick and Albert streets, East Melbourne, Australia, May 20. Among the guests were the Lord Mayor of Melbourne, the attorney general of Victoria and official representatives of several medical societies. The building is reinforced concrete with two stories above the ground floor. In the vestibule is a bronze representing an army medical corps officer attending a wounded soldier, designed by the sculptor Web Gilbert as a memorial to members of the Victorian Branch who have died in the service of their country. There are rooms for officers of the society, an assembly hall and a library.

Liaison Medical Officers.—As an experiment the board of governors of Westminster Hospital, London, has decided to expend the recent gift of £20,000 of Mr. A. J. H. Carlill in establishing a unit of clinical pathology, around which all work of the hospital will center. The proposed unit will have a director, assisted by two heads of laboratories. There will be no beds assigned to the unit, but the director will be expected to cooperate closely with the staff of the hospital. There will be attached to the director and his assistants liaison officers, whose duty it will be to see that their chiefs are kept informed about cases in the wards. The *Lancet* considers "the Westminster scheme" as appearing to be an interesting experiment directed toward placing the teaching of pathology on a new basis.

Recommendations on Oblique Advertising.—The ethical committee of the British Medical Association reported at Bath its recommendations on "oblique advertising." The committee recommended that practitioners of medicine who desire to discuss in the newspapers matters relating to medical science and policy and public health, should submit to such publication only on condition that laudatory editorial comments or headlines in the newspaper relating to the contributor's professional status shall not be permitted; that his address or photograph shall not be published and that there be no unnecessary display of his medical qualifications and appointments; it was especially emphasized that well known practitioners and those in authority observe these conditions as their example would influence the action of their less recognized colleagues.

Vital Statistics in Ireland.—Sir William Thompson in addressing the Royal Academy of Medicine in Ireland reported on the outstanding features of vital statistics in the Irish Free State. He said that the tuberculosis death rate from 1901 to 1910, the first period for which information is available for the Saorstát Eireann area, was 2.53 per thousand population and that it fell to 1.41 in 1923, a reduction of 44 per cent. The cancer mortality rate rose from 0.37 per thousand population for the period 1881-1890 to 0.81 for the period 1911-1914, since which time the rate has remained practically stationary. He believes that the low rate in the earlier years was largely due to faulty diagnoses. The death rate from all causes for this area in Ireland fell from 16.67 per thousand in 1913 to 13.34 in 1923, while in England and Wales it fell from 13.8 to 11.58, representing reductions of 20 and 16 per cent., respectively.

Personal.—Dr. K. Miyairi, professor of hygiene, Kyushu Imperial University, Japan, has tendered his resignation, having reached the age limit of 60.——Capt. William H. Dye of the Royal Army Medical Corps has been awarded the North Persian Forces Memorial Medal for 1924 for his paper, "Schistosomiasis and Splenomegaly in Central Africa," which was published in the *Journal of the Royal Army Medical Corps,* September, 1924. Captain Dye was on duty in Nyasaland when this work was done.——Dr. Arnold K. Henry, Dublin, for five years editor of the *Irish Journal of Medical Science,* has gone to Cairo, Egypt, to become professor of surgery in the University of Cairo.——Sir John Robertson, medical officer of health, Birmingham, and Lady Robertson were honor guests at a dinner, July 10, given by the Midland Branch of the Society of Medical Officers of Health to celebrate the honor of knighthood recently conferred on Sir John.

International Conference on Formulae of Heroic Medicaments.—The Second International Conference on the Unification of Formulas of Heroic Medicaments will be in Brussels, Belgium, the week beginning September 21. The first conference was in 1902 in Brussels, with twenty different countries represented. The agreements reached were incorporated in a treaty which was signed November 29, 1906, the United States signing with the reservation that it did not assume any other obligation than that of exercising its influence to bring the next edition of the Pharmacopeia of the United States into harmony with the agreement. The countries which have signified their intention of participating in the second conference are Great Britain, Germany, France, United States, Denmark, Italy, Greece, Austria, Hungary, Norway, Sweden, Switzerland, Roumania, Turkey, Peru, Haiti, Finland and Egypt. Dr. A. G. Dumez of the Hygienic Laboratory, Washington, D. C., will be the official delegate of the army, navy and U. S. Public Health Service.

Government Services

Inspection of Army Hospitals

Surg. Gen. Merritte W. Ireland, U. S. Army, recently returned to Washington after an inspection of the Army and Navy General Hospital, Hot Springs, Ark.; Station Hospital, Fort Sam Houston, Texas; William Beaumont General Hospital, El Paso, Texas; Letterman General Hospital, City of San Francisco, Calif., and Fitzsimmons General Hospital, Denver, all of which, he said, according to the *Army and Navy Journal*, were operating in splendid order. The outstanding need of the medical department of the army, it appears, is the immediate construction of fireproof quarters for officers and nurses and barracks for the enlisted personnel. General Ireland will report to the War Department the condition of affairs relative to the housing of the medical department personnel.

Appointments to U. S. Public Health Service

The following physicians have been appointed and commissioned in the grade of assistant surgeon, U. S. Public Health Service, effective on the date of oath: John F. G. Gates, Fall Creek, Wis., Derrick A. Hoxie, Emerald, Neb., Jack H. Ayers, New Orleans, Everett B. Archer, Memphis, Tenn., and Fletcher C. Stewart, San Francisco.

Navy Promotions

The Navy Medical Corps Selection Board recently passed over six commanders and nine lieutenant-commanders in making recommendations for promotions. The selections were approved by the President, July 25. Drs. Richard C. Holcomb, George F. Freeman and Charles St. J. Butler were recommended for the rank of captain, and Paul R. Stalnaker, Edward C. White, Thurlow W. Reed, Edward U. Reed, Edgar L. Woods, John B. Kaufman and Abraham H. Allen for the rank of commander.

Navy Resignations

The following medical officers of the navy have tendered their resignations: Lieutenants Thomas L. Carter, Marine Barracks, Pontico, Va.; Reginald A. Cutting, Naval Medical School, Washington, D. C.; Francis J. Vurpillat, Naval Hospital, Washington, D. C., and Robert S. G. Welch, Naval Hospital, Boston.

Army Foreign Service

The following medical officers have been ordered to the Philippine Islands for duty, to sail about October 28: Lieut.-Col. Arthur S. Pendleton, Major Christian H. Dewey, Capt. Victor N. Meddis; Capt. Clyde M. Beck, to sail about November 20. The following officers, now on foreign service, have been ordered to home stations on completion of their tour: Lieut.-Col. William H. Teff to Fort Thomas, Ky.; Major John V. Littig to the General Dispensary, Washington, D. C.; Capt. Henry S. Blesse to Walter Reid General Hospital, Washington, D. C.; Capt. Horace T. Doust to Fort Sam Houston, Texas, and Capt. Robert Malcolm to West Point, N. Y.

"National Health Service"

Surg. Gen. Hugh S. Cumming desires to announce that the "National Health Service," which advertises and sells a "Health Book," has no connection whatever with the U. S. Public Health Service and, so far as can be learned, with no other branch of the government, and that it should be definitely understood that the U. S. Public Health Service does not endorse this self-styled "National Health Service" or its books. This announcement seems necessary, the Surgeon General says, in fairness to the general public.

Foreign Letters

LONDON

(From Our Regular Correspondent)

July 28, 1925.

Vital Statistics

The report of Sir George Newman, chief medical officer of the ministry of health, for 1924 again shows the tendency toward lower birth and death rates. Infant mortality has also declined, except in the case of infants under 4 weeks. Newman holds that greater progress would be made in securing improved public and personal health standards if people could be persuaded to use the medical knowledge and facilities now available. He gives an example of national progress, the communal care of water supplies, by which typhoid, for example, has been deprived of terror, and the feeling for infant life, exemplified in the remarkably improved figures, and asks pertinently why other similar opportunities for public cooperation are not accepted. The number of births recorded in England and Wales in 1924 was equivalent to a birth rate of 18.8 per thousand of population. This marked a decline of 0.9 on the previous year and of 6.7 as compared with 1920. The death rate was 12.2 per thousand persons living, or 0.6 per thousand higher than in the previous year, but among the lowest in the history of this country. The decline in the death rate has been accompanied by a steady reduction in the birth rate from an average of 21.8 per thousand persons living in the decennium 1911-1920 to 18.8 in the year 1924. With the exception of the war years, the birth rate in 1924 was the lowest yet recorded.

The most noteworthy increase in deaths was in influenza (10,000 more than in 1923), bronchitis, pneumonia, diseases of the heart, and cancer.

Proportions of Principal Causes, per Thousand Deaths

1. Bronchitis, pneumonia, and other respiratory diseases	174
2. Diseases of heart and circulation	168
3. Cancer and malignant disease	106
4. Diseases of the nervous system	100
5. All forms of tuberculosis	87

Although there was a slight increase in infant mortality over 1923 (the best on record), the general improvement in this respect was maintained. Evidence appears to show that, whether or not there is some biologic change taking place in the reduction of virulence of certain maladies and infections affecting children under 1 year of age, the predominant factor in the recent improved health of infancy is better mothering, proper food, and improved domestic conditions immediately concerned with child welfare. The number of deaths of infants under 1 year of age in 1924 was 54,813, as against 52,582 in the preceding year. The reduction since 1881 has affected mainly the age period 3-12 months. The death rate under 4 weeks still remains relatively high. The death rate for 1924, per thousand births, was 75, compared with 69 in 1923.

The related mortality among women in childbirth still remains high, and has shown little or no improvement since 1894. No fewer than 2,703 women died in childbirth, and another 144 from conditions associated with it. Of the 2,847, as many as 1,018 died from puerperal fever.

There was lost to the nation in the year, among the insured population only, and excluding the loss due to sickness for which sickness or disablement benefit is not payable, the equivalent of twelve months' work of 447,115 persons.

The cases of epidemic encephalitis in England and Wales in 1924 numbered 5,039, a total that exceeds the sum of the numbers for the preceding five years. All ages were attacked, from the new-born babe to the octogenarian. The incidence of the disease appears to be fairly evenly distributed over the years 20 to 40, and declines with advancing years. It appears probable that mental after-effects, especially in children, occur in a large proportion of the surviving patients.

The number of deaths registered from tuberculosis in England and Wales for 1924 was 41,103, of which 32,690 were of the respiratory system, and 8,413 of other forms. These figures indicate, as regards tuberculosis of the respiratory system, a check in the decline that has been experienced since 1918. Several observers are inclined to attribute this to poverty and distress associated with the large amount of unemployment. With regard to the Spahlinger treatment, the minister has offered to have a trial made of Spahlinger's preparations in this country as soon as the necessary materials are available.

In the section on food, it is stated that our present need is for more milk and better milk. In connection with preservatives in foods, Newman points out that boric acid appears to be a cumulative drug. In large doses it may cause death; in smaller doses it is injurious to infants and to invalids, and some healthy persons are peculiarly susceptible. In amounts commonly taken in food it cannot be assumed to be free from objection, since there is no limit below which it can be said to be without some effect.

The Increase of Cancer

The second annual report of the British Empire Cancer Campaign, which has just been published, once more calls attention to the increase of the disease. In its letter of appeal of May 30, 1923, the campaign pointed out that the registrar general's figures for 1921 showed that among persons over 30 years of age 2,328 more had died of cancer during the previous year. The total deaths from cancer in England and Wales then stood at 45,328. The official return for 1924 gives 50,000 as the comparable figure—a further increase of no less than 4,672. The coordination of effort has already borne fruit during the last year in the increased financial support given to institutions and persons engaged in cancer research work. But it is evident that the fight will be neither short nor easy, and that its duration will to a large extent depend on the resources available, which, though already generous, are still inadequate for the great effort required. In the statistical field, attempts are being made to obtain reliable figures from outlying parts of the empire, from which they have not previously been available. The relation between the incidence of cancer and certain irritants, such as soot, pitch, tar derivatives, heat, and roentgen rays, is being studied under careful conditions. Experiments are being made as to the cancer-producing properties of certain animal tissue derivatives and as to the possible effects of certain food preservatives. The effects of various metals in the treatment of tumors are also being investigated.

The Increase of Insanity

At the Royal Commission on Lunacy and Mental Disorder, evidence was given by Sir Lewis Beard, town clerk of Blackburn, and a representative of the Association of Municipal Corporations. He said that lunacy in this country was growing at a rate which before long would overtake the available accommodations. The increase in the number of certified persons in the four years 1920-1923 was 3,569, and the present vacant accommodation was sufficient for 4,794 persons. It would be impossible to meet the growing demand in the ordinary way by building, because the cost of erecting new institutions was prohibitive. It would eventually be necessary to build more asylums, but as a temporary expedient he proposed that a considerable number of old persons whose mental powers were failing, but who were not insane, should be removed to the vacant beds in poor law institutions, and so release accommodation in asylums for persons definitely insane. Concerning the treatment of incipient insanity, the Association of Municipal Corporations approved the principles of the mental treatment bill. The suggestion of providing institutions for the treatment of intermediate uncertified cases had not been before his association, but he felt that the relatives of a patient were so sensitive in the matter that they would not report mental disorders in time for such institutions to do any good. Referring to the question of certification, there should be a more formal method of procedure than at present. If a man were to be sent to prison for six weeks, there had to be two justices and a clerk sitting in open court, but if a man were to be sent to an asylum perhaps for life, it could be done without any publicity or formality.

PARIS

(From Our Regular Correspondent)

July 27, 1925.

The Rôle of the Antituberculosis Dispensary in the Treatment by Artificial Pneumothorax

In the current number of the *Revue de phtisiologie*, Dr. E. Eber, director of the Aubure Sanatorium, department of Haut-Rhin, publishes a study of the rôle of the antituberculosis dispensary in the treatment by artificial pneumothorax, based on statistics collected from the service of Dr. Rist in the Léon Bourgeois dispensary. A table illustrates how the patients came to seek advice at the dispensary, and in what condition they were on admission. Of the 427 patients who were subjected to treatment by artificial pneumothorax, 314, or nearly three fourths, were not aware that they were tuberculous, although all presented tuberculous cavities. In 369 cases, or 88.9 per cent., the indications for a therapeutic pneumothorax, the only chance of recovery known at present in this category of patients, were first pointed out at the dispensary. In thirty-two cases, or 7.4 per cent., prolonged and repeated observation by means of a series of roentgenograms secured by ambulant supervision at the dispensary made it possible to institute artificial pneumothorax in patients presenting bilateral lesions. In thirteen cases, or 3 per cent., calls on the family of a tuberculous person revealed patients who furnished the proper indications for pneumothorax.

By another table it is shown that the social service of the dispensary, as soon as the indications for a pneumothorax had been reached in the case of any patient, immediately took the necessary steps with the administration of public assistance or with private organizations to secure for such patient either hospitalization or sanatorium treatment. Almost all the patients were hospitalized in the tuberculosis service of Dr. Rist, in the Laënnec Hospital, and the author emphasizes in this connection the almost indispensable value of such an association of a dispensary with the general hospital. The duration of hospitalization ranged from two to six months, ordinarily.

In 291 cases, or 68.1 per cent., the results of the hospital treatment had to be supplemented by a sojourn in a sanatorium, while 136 patients were able to dispense entirely with sanatorium treatment, although most of the latter took advantage of a prolonged stay in the country.

At the time of the institution of the pneumothorax, 276 patients, or 61 per cent., were from 16 to 25 years old, and the duration of the treatment at the dispensary averaged six months.

The author emphasizes the need of a prolonged supervision (especially, by means of roentgenograms) of patients who have been subjected to artificial pneumothorax, and he ends his discussion with interesting data showing the varying periods of loss of working time of these patients and the social interest of the question. These are the general conclusions that he has drawn from his study: 1. The dispensary should be a center for thorough and repeated examinations; that is to say, a center for early diagnosis, and, in view of the great prophylactic and economic interest of the problem, should institute treatment by artificial pneumothorax whenever such indications are found. 2. The social service of the dispensary, in view of the institution of the artificial pneumothorax and the need of its stabilization, should provide, if possible, immediate sanatorium treatment, or prompt hospitalization, followed, if necessary, by a supplementary sojourn in a sanatorium. 3. The dispensary must be a center for reinsufflation, and, at the same time, the medical guide and the moral support of the pneumothorax patient during his convalescence. 4. The dispensary should advise as to the time when the patient may resume work, and should see to it that the work is such that the patient can perform with safety. 5. The dispensary should continue its supervision of pneumothorax patients, in order to give them, in case of recurrence, the necessary care at the critical moment. 6. In order that the foregoing conclusions may be of benefit, it is indispensable that the physician to the dispensary conduct the roentgenologic examinations. 7. The dispensaries should be closely associated with a special service of a hospital, not only in view of the institution of artificial pneumothorax but also for the purpose of general supervision and eventual treatment in case complications arise. 8. To facilitate the regional exchange of pneumothorax patients who are clients of a dispensary, a card of information covering the whole territory of France should be prepared and supplied to the patients. Such card or folder should give the names of phthisiologists, dispensary and sanatorium physicians, and general practitioners who make a specialty of the Forlanini treatment, who are supplied with the necessary equipment, and who are willing to assume supervision of pneumothorax patients belonging to the clientele of the dispensaries.

A Prophylactic Measure in Cholera Infantum

Before the Société médicale des hôpitaux de Paris, Ribadeau-Dumas and Fouet recently presented a communication on a prophylactic measure in cholera infantum. The fact that cholera infantum occurs mainly during the summer months has caused it to be confused at times with heat stroke. It should be noted, however, that cholera infantum may occur at other than elevated periods of temperature. It is frankly differentiated by its symptoms, in which dehydration and digestive disturbances predominate. Breast-fed infants never present genuine cholera infantum. Infants who are nourished with cow's milk are particularly exposed. The cow's milk most likely to produce cholera infantum is that which is drawn during hot hours of the day, and only after the lapse of from twenty to twenty-four hours is subjected to imperfect sterilization or, more particularly, pasteurization. It becomes more and more harmful, the longer the time that elapses after this operation before it is consumed. At the infant care-taking institution of Mandres, of which Ribadeau-Dumas and Guinon are the directors, the digestive disturbances are negligible when powdered milk is used in infant feeding.

"Sanocrysin" in the Treatment of Tuberculosis

Prof. Léon Bernard, director of the hygienic institute of the Faculté de médecine de Paris, has sent one of his assistants, Dr. Poix, to study in Copenhagen the mode of use and the effects of "Sanocrysin." As a result of this mission, Dr. Møllgaard has sent Professor Bernard a quantity of the new product. Fourneau, of the Pasteur Institute, has prepared the same substance. With the aid of these products, extensive experiments have been undertaken in the services of Léon Bernard, Bezançon, Rist and Sergent, and at the Bligny Sanatorium, under the control of a committee appointed for this purpose and composed of Léon Bernard, Bezançon, Calmette, Fourneau, Guinard, G. Küss, Poix, Rist, Sergent and Teissier. When the experiments of all have been finished, the committee will collect the observations and will present a common report dealing with the facts and the conclusions. From the standpoint of the interests of patients and of scientific truth as well, it would be premature to attempt to form a definite opinion as yet as to the value of this new therapeutic method.

Compulsory Notification of Tuberculosis in Morocco

The service de santé and the public health service of Morocco have been engaged for some time in the organization of a campaign against tuberculosis. Both Fez (population, 71,000) and Casablanca (population, 102,000) have an antituberculosis dispensary due to the inspiration of Madame Lyautey, wife of the field marshal, who has likewise given the city of Rabat (population, 31,000) an infirmary with visiting nurses and "sun gardens" for weakly children, where they may be protected against contagion.

Dr. Lapin, chief of the antituberculosis service, decided that the time had come to introduce compulsory notification of open pulmonary tuberculosis. A law requiring such notification in Morocco went into effect, April 7, 1925. A reservation provides, however, that a physician may defer the notification if he is certain that he is in a position to prevent contagion. This reservation may appear regrettable, for it leaves the way open for possible abuses; but, in spite of that fact, Morocco is to be congratulated for having introduced compulsory notification, following thus the example of Scotland, Norway, Denmark, England, New Zealand, Union of South Africa, Germany and individual states in the United States, all of which, after a number of years, have witnessed the progressive diminution of the mortality from tuberculosis following the adoption of this measure.

BUENOS AIRES

(From Our Regular Correspondent)

June 30, 1925.

Medical Teaching Problems

Since Dr. Cranwell was elected dean of the medical school, the constant agitation that disturbed its work has subsided. There are, however, some problems that must be faced. In the first place, examinations have become almost continuous. Those started in March ended only in June, when fifth year students were already coming up for examination. In July, general examinations will start, which will last until August or September. The same process will begin anew in November. As students practically stop studying during examination, examinations are actually putting an end to regular teaching.

Another serious question is the enormous number of students (5,000). In each of the first two years, more than 800 are enrolled. Such large classes prevent any practical training. The repeated suggestions as to limiting the number of admissions so far have borne no results. Few, indeed, are the full-time professors, and now at last it is intended to increase their salaries. The appropriations for research and teaching equipment and material do not even represent 10 per cent. of the total expense, and are obviously inadequate. The curriculum is also to be revised.

A bill is now pending authorizing new buildings for the school of dentistry, laboratory of clinical medicine and other departments. Another bill just introduced provides for the construction of a clinical laboratory for the chair of clinical medicine, in charge of Dr. M. R. Castex.

Bequests and Donations

Seldom are funds donated here for public welfare work. A short time ago, Dr. G. Araoz Alfaro, one of the professors in the medical school and president of the national health department, donated 100,000 pesos (about $40,000) to aid in the organization of a tuberculosis institute in the university. Unfortunately, other funds are coming in slowly.

Two of the city hospitals (Durand and Piñero) represent gifts from public-spirited citizens. Mr. Manuel Rocca bequeathed some time ago funds amounting to 600,000 pesos (about $240,000), with the accrued interest, for the construction of a tuberculosis preventorium at Floresta. The plans call for four pavilions and office buildings. Work is about to begin on this institution.

An anonymous giver has furnished funds to build a pavilion for typhoid patients at the Children's Hospital.

Trouble Over a Professor's Appointment

The recent appointment of Dr. P. Baliña as clinical professor of dermatosyphilography has caused a great deal of comment, as he was second in the list of candidates submitted to the government. While the first candidate in the list is usually selected, the appointing power is free to choose any of the three names submitted. While the universities boast of their independence, they are really under the control of the government, which approves their budgets and appoints and dismisses professors. Both Dr. Baliña and the candidate named for the first place are prominent specialists. Baliña was given three votes because of his clinical experience and judgment, teaching capacity and learning. His rival received nine mostly because he has published more papers and has served a little longer on the teaching staff.

Postgraduate Courses

In August, Prof. L. Lapicque of La Sorbonne will arrive from Paris to give some lectures on chronaxia and cell permeability.

Prof. P. Del Río Ortega has just completed a successful series of lectures on tissue staining with silver preparations. His course constituted a welcome departure from previous practices by foreign lecturers, who usually explain matters only too familiar to our physicians. Dr. Del Río also lectured on epiphyses, nerve cells, neuroglia and mesoglia.

Profs. G. Bertrand of La Sorbonne and P. Duval of the Paris Medical School will arrive in July to lecture on biochemistry and surgery, respectively.

BERLIN

(From Our Regular Correspondent)

July 18, 1925.

The Congress of Psychology at Munich

The first paper at the Congress of Psychology in Munich was presented by Bühler, professor of philosophy in the University of Vienna, on "The Instincts of Man." There are two currents of thought which are opposed to each other: (1) the emotion theory, supported by MacDougall, according to which instinctive actions are the immediate products of the emotions; for example, the fighting instinct from anger; the care-taking instinct from the emotion of tenderness, and (2) so-called behaviorism, which teaches that a definite situation must elicit a corresponding reaction. The weakness of the emotion theory, whose advocates, MacDougall and A. Shand, recognize as elementary instincts—appetite for food, sexual impulse, care of the young, acquisitiveness, the building instinct, social instinct (that is, craving for bodily presence and soul contact), self-assertion, disposition to subordinate one's self, fighting instinct, fleeing instinct, curiosity—lies, according to Professor Bühler, not only in the fact that the instincts that lead up to the higher intellectual life of man are overlooked, but, more particularly, in the fact that, in harmony with the belief of the representatives of this trend of thought and their conception of the part played by sound human reasoning, the whole weight of influence is thrown on the emotions and these are made the seat of all original motivation and the basis of all instinctive striving toward a particular goal. The weakness of behaviorism, of which there are at least six or seven different forms, which set up a varying number of elementary instincts, lies in the fact that, while an immense amount of material has been collected, it has not yet been arranged and classified. The value of the contributions of American investigators to the theory of instincts lies, according to Bühler, mainly in the accumulation of valuable observational material, particularly in the field of child and animal psychology, but the material thus collected needs to be brought into a system.

There followed a number of addresses from the field of psychology of the senses. R. Pauli of Munich read a paper on differential sensitiveness in the realm of taste and pressure sense. A. Wenzl of Munich discussed in this connection the possibility of a physiologic explanation of Weber's law and took up the manifold physiologic stimuli based on mathematical formulas, signaling out their points of resemblance and their fundamental differences. An extension of Weber's law to a number of psychologic and biologic generalizations appears promising. R. Bujas of Agram distinguishes three theories of the sensation process: the passivity theory, according to which a stimulus of the external world acts on the organism; an activity theory, according to which the perception is produced actively and the conditions in the external world play a subordinate rôle, and a reciprocal action theory, according to which the perception is produced when one of the two factors—disposition and external world—is changed. He discussed the latter theory, which he himself holds, in connection with contrast perceptions.

Prof. William Stern of Hamburg dealt with the concept of personalization, or what he termed *"Personalistik,"* as an ancillary science of psychology. The "personalistic" conception, in contrast to the mechanistic view, regards man as a unit—as a person. It deals, on the one hand, mainly with the problems of significance and interpretation, and on the other hand, with the problems of structure and formation. In any psychologic act we must distinguish between the sense significance, which inquires into the purpose of the act, and the symbolic significance that the act has for the character of the person.

A. Gelb of Frankfort-on-the-Main discussed pathologic disturbances of space perception. The study of pathologic cases sheds an important light on the psychology of normal persons. A normal subject is especially sensitive to impressions of the vertical. The test of the relative accuracy of the subject's conception of the true vertical is, of course, the degree of agreement with a plummet line passing through the point in question. The author discussed the problem from the standpoint of the three egocentric orienting systems as set up by G. E. Müller: the orienting system based on the coordinates of the eye, the system based on the coordinates of the head, and the system based on the coordinates of the trunk and the fixed station. He referred to a patient in whom these three systems, owing to a pathologic disturbance, appeared to have become separated from one another. As a result, the patient thought a true vertical was deflected, whereas a vertical that had been inclined a certain number of degrees either to the left or to the right appeared to him to be vertical. Objects become strangely distorted, taking on shapes that cannot be represented by Euclidean geometry.

Prof. K. Goldstein of Frankfort-on-the-Main took as his subject the effect of abnormal tonus processes on the psyche. He referred to a patient in middle life who was timid and precipitate but very precise in his conduct and whose reactions were dependent on the psychic adjustment of the moment. If he is engaged in any act, his mind is wholly concentrated on that particular thing, and he reacts to other instructions either with difficulty or not at all. For example, if he has been induced to show his tongue, he continues to do so until some one vigorously intervenes. If he is asked to drive a nail into a chair, he continues to hammer on even after the nail has been taken out of his hand, provided he is told the nail is there and the nail is pointed out to him. Another peculiar thing is his tendency to persist in maintaining a direction in space to which he has once adjusted himself. For instance, if an arrow is used to designate a downward direction and he is asked to write the word "today," a copy for which is written for him horizontally, he will seem puzzled for a moment and then will write the letters one under the other. This and other experiments were shown by a film.

E. R. Jaensch of Marburg treated in his paper the topic "Preliminary Questions on the Psychology of Thinking, in the Light of the Typologic Method of Research," in which he emphasized the necessity of psychology treating more intimately the evolutional aspects of the problem. In the case of evolutional development the functions that are older, historically speaking, are preserved while functions of later development are superimposed on them. This is especially true of the central nervous system. It follows, therefore, that we must not simply inquire into the essential nature of thought per se as would be necessary in the psychology of thinking based on the theory of the origin of knowledge, but must take account of the fact that in our minds there are various stages and strata of thinking. The functions that are older, from the evolutional standpoint, may sometimes, under peculiar circumstances, again come to the fore; for example, in athletes in a state of extreme fatigue. Especially pregnant cases in which traits that in the normal mental life are found only in a weakened form appear more distinctly must be carefully studied. The eidetic type of mind is found to be particularly prominent in children who are instructed according to the principles of the technical schools. Their thinking is characterized by marked intuitive perception, or the calling to mind of objective images, which has its advantages and its disadvantages. But it has been found that the precondition for the eidetic phenomena is a more elementary deeper-lying stratum of psychic development. Usually, objective perceptions are preceded by nonintuitive or preintuitive experiences—a sort of introductory process; the objects of the external world are quickened and animated. In order to recognize this stratum more clearly, we may call to mind the synesthetic type. For many persons of the synesthetic type there are no lifeless inanimate things—everything is animated. The external world presents, therefore, to them, not infrequently, an aspect not unlike that depicted by "expressionistic" paintings. This conception throws light on the visions of the anthroposophists, also. A poet such as E. T. A. Hoffmann can be best understood through the psychology of synesthetic persons, and that his works are at all understood and appreciated is owing to the fact that we still have in us remnants of this stratum.

O. Kroh of Tübingen gave his observations on the esthetic element in juveniles. His researches lead him to believe that esthetic receptivity begins to manifest itself much earlier than has been commonly supposed.

H. Volkelt of Leipzig presented a paper on the "Progress of Experimental Child Psychology." Researches in experimental psychology of the new-born have shown that as early as the seventh day the voice of the mother has a more calming effect than that of any one else. It has been found that infants 3 months old have already developed a color sense; that is, a liking for colors, as is shown by the fact that the eyes will remain fixed for some time on colors presented. The capacity for estimating the size of objects by the eye is more fully developed in both children and adults than is the ability to judge the extent of surfaces, and the latter power is more accurate than the estimation of distances by the eye. But with age the differentiation disappears. Child psychology, Volkelt holds, must necessarily follow the direction of the qualitative and the universal. If it will do so, he thinks that pedagogy will again seek to profit by the findings of experimental child psychology, notwithstanding the fact that of late it has turned its back on it.

W. Rubin of Copenhagen spoke on the subject of the nonexistence of attention. He referred to the difficulty of defining the term "attention." The comparison of attention to a searchlight, with which many different objects can be illuminated, he regards as inapt. The author performed experiments in which two different texts were conveyed to the experimental subject by two different telephone wires. Of course, only one text could be actually understood in its full meaning, whereas the other was perceived first as a disturbing sound and finally was no longer perceived at all. The experimental subject did not observe that the text which was excluded from the attention was read first in Danish and later in German.

E. Marbe of Würzburg discussed in his paper on "Psychic Adjustment" the notion of personality, which at every moment presents a definite adjustment (*Einstellung*). Even sense perception does not result entirely from sensations; the formative side is dependent to a considerable extent on the psychic adjustment. The author adduced as proof of this statement the court cases and experiments of N. Kleist of Würzburg. He considered them the effects of psychic adjustment on the general experiences of life. Finally, he took up the importance of psychic adjustment and readjustment for the life of the individual, the life of the race or civilization, and for the teachings of pedagogy.

The Physicians and the Health Insurance Societies

In the controversy between the physicians and the health insurance societies, the medical faculties of the university medical departments of Germany have issued a manifesto, which bears the signatures of Professors Gräfe, Lubarsch, Riecke, Rietschel and Rolly. The following excerpts will give an idea of the nature of the document:

The medical faculties, as the authorized custodians of the possessions of medical science and art, view with increasing anxiety a growing tendency of medical practitioners to hold themselves aloof from the centers where their knowledge and skill would receive an uplift. Large numbers of medical practitioners are wearing themselves out endeavoring to solve the purely economic problems imposed by the struggle for physical existence, so that many of them have neither the time nor the strength for the continuation of their studies or for scientific research. There is therefore an imminent danger lest, slowly but progressively, German physicians, whose ability has heretofore been looked on in their own country as a natural and indisputable possession, and has brought them much distinction in foreign lands, shall lose their grasp on modern medicine. It behooves us, therefore, to note that a decline of the medical profession in its attitude toward progressive medical science and ethical culture, at the same time, would be sure to result in the impairment of public health and the weakening of national strength.

For these reasons, the medical faculties urge our people and our government to discover some means by which the useless and unfruitful controversies between the physicians and the executive boards of the health insurance societies can receive a final settlement. This cannot be accomplished by half-hearted, half-way measures.

The treatment of the patient must be left entirely in the hands of the physician, and the supervisional control, as is even now the case in many districts, must be exercised more generally by competent representatives of the medical profession. With this end in view, a reorganization of the whole system of national social or health insurance, together with a readjustment of the relations of the medical profession to that system, is the imperative need of the hour.

The most valuable possession of the state is its people. The health of the people is the state's source of strength. In protecting the guardians of public health, the state is protected. A medical profession that is free will take a keen delight in the performance of its duties and will develop its powers to the fullest extent, filled with the noble consciousness of its moral obligations. A medical profession that is compelled to function under the oppressive control of a bureaucracy, while deprived of its traditional forms of activity and with its beloved medical science enchained, will gradually but surely lose its lofty conception of personal worth and all pleasure in and love for the individual treatment of its patients, and, as a consequence, will direct its sole attention to the attempted solution of economic problems. Only through unhampered competition can the highest capabilities in the medical profession, as elsewhere, be brought out. It is plainly evident, therefore, that the continued welfare of the German people depends in no small measure on the restoration to the medical profession, untrammeled, of the liberties it once so keenly enjoyed.

Marriages

Harry Arnold Hull McNitt to Miss Ruth Geraldine Barlow, both of Washington, D. C., July 25.

William F. McColl, San Diego, Calif., to Miss Esther Ann DeVies of Madison, Wis., June 4.

Clifford Marion Jones, Whiting, Ind., to Miss Edna Gillespie Huston of Logansport, June 30.

Richard Neubauer, Portland, Ore., to Miss Adelaide Landers of Minneapolis, recently.

George L. McNeal, Kokomo, Ind., to Miss Martha Mae Johnson of Huntington, June 14.

John A. D. Engesather, Brocket, N. D., to Miss Laura E. Norley of Grand Forks, June 18.

William Simmons, Lakeville, Conn., to Miss Sophie C. Johannsen of Cincinnati, June 24.

William Kendall Adair, Crothersville, Ind., to Miss Inez Ahl of Jeffersonville, June 13.

Carl David Neidhold to Miss Dorothy Lord Pierce, both of Appleton, Wis., August 1.

Henry J. Lupien, Brockton, Mass., to Miss Ida F. Hiscoe of Cambridge, June 28.

John E. Rarick to Miss Wilma McDonald, both of Wolcottville, Ind., May 22.

Irvin Davis, Belleville, Ill., to Miss Anna Willma Selph of St. Louis, June 21.

Otto Fernando Shipman to Miss Mae Mathias, both of Los Angeles, June 10.

Sheppard Remington, Chicago, to Miss Laura Kalisch of Brooklyn, August 8.

Robbins E. Fisher to Miss Faye McKinins, both of Wallowa, Ore., recently.

Homer James Gordon to Miss Miriam Frumkin, both of Chicago, August 4.

E. M. Land to Miss Thelma Sloan, both of Marengo, Ind., June 11.

Deaths

George Christian Amerson ⊕ Chicago; Chicago Homeopathic Medical College, 1902; College of Physicians and Surgeons, Chicago, 1904; formerly professor of surgery, Chicago College of Medicine and Surgery, and clinical professor of surgery, Loyola University School of Medicine; served in the M. C., U. S. Army, in France, during the World War; aged 47; died, August 7, of pernicious anemia.

Walter Buckley Johnson ⊕ Paterson, N. J.; Medical Department of Columbia College, New York, 1878; member of the American Laryngological, Rhinological and Otological Society, the American Ophthalmological Society, and the American Otological Society; on the staff of the Paterson General Hospital; aged 69; died suddenly, July 30, at Preakness, of angina pectoris.

Henry Thomas Harvey ⊕ Atlantic City, N. J.; University of Pennsylvania School of Medicine, Philadelphia, 1908; member of the Pathological Society of Philadelphia; past president of the Atlantic County Medical Society; on the staff of the Atlantic City Hospital; chief medical inspector of public schools; aged 42; was found dead in bed, July 30, of heart disease.

Lucien Calvin Warner, New York; Medical Department of the University of the City of New York, 1867; trustee of Oberlin College, to which he presented two buildings, the conservatory of music and a gymnasium; chairman of the International Committee of the Y. M. C. A., from 1895-1910; director of the Home Insurance Company; aged 83; died, July 30.

Charles Lewis Tisdale, Alameda, Calif.; Hahnemann Medical College and Hospital, Chicago, 1878; at one time secretary of the state board of medical examiners and coroner of Alameda County; formerly member of the board of education; aged 67; died suddenly, July 14, of heart disease.

John MacGregor Burns, Mansfield, Ohio; University of Pennsylvania School of Medicine, Philadelphia, 1900; member of the Ohio State Medical Association; past president of the Richland County Medical Society; formerly city health officer; aged 49; died, July 23, of pneumonia.

George H. Savage ⊕ Memphis, Tenn.; Vanderbilt University Medical Department, Nashville, 1898; member of the American Academy of Ophthalmology and Oto-Laryngology and the Memphis Society of Ophthalmology and Oto-Laryngology; aged 49; died, July 30.

Eldon N. Hall, Bowling Green, Ky.; University of Tennessee College of Medicine, Memphis, 1881; member of the Kentucky State Medical Association; in 1908 was elected fourth vice president of the American Medical Association; aged 67; died, July 27.

Walter Ball Laffer ⊕ Cleveland; Western Reserve University School of Medicine, Cleveland, 1896; formerly associate professor of mental and nervous diseases, Cleveland College of Physicians and Surgeons; aged 54; died, in July.

James R. Littleton, Augusta, Ga.; University of Georgia Medical Department, Augusta, 1892; formerly mayor of Augusta and member of the state legislature; aged 58; died, in July.

Hugo John August Julius Hartig, Minneapolis; University of Minnesota Medical School, Minneapolis, 1914; aged 34; died, July 26, of injuries received in an automobile accident.

Winfield S. Harvey, Salina, Kan.; College of Physicians and Surgeons, Chicago, 1885; member of the Kansas Medical Society; aged 78; died, July 25, following a long illness.

Albert William Quattlebaum, Statesboro, Ga.; College of Physicians and Surgeons, Baltimore, 1889; member of the Medical Association of Georgia; aged 62; died, July 8.

James Robert Gilliland, Johnson Grove, Tenn.; University of Tennessee College of Medicine, Memphis, 1912; aged 45; died, July 18, at Memphis, of bronchopneumonia.

Marion Ely Pirkey, Louisville, Ky.; University of Louisville School of Medicine, 1911; aged 39; died, July 27, at a local sanatorium, following a long illness.

Henry F. Weaver ⊕ Easton, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1881; member of the school board; aged 67; died, June 16.

James H. Seright, Kansas City, Kan.; University Medical College of Kansas City, Mo., 1897; aged 57; died, July 19, of cirrhosis of liver and myocarditis.

William B. Patton ⊕ Springfield, Ohio; Ohio Medical University, Columbus, 1898; on the staff of the Springfield City Hospital; aged 53; died, July 24.

John Pinkney Norris, Columbus, Ga.; Atlanta Medical College, 1891; member of the Medical Association of Georgia; aged 61; died, July 21.

Mortimer Clement Waggoner, DeWitt, Iowa; Hahnemann Medical College and Hospital, Chicago, 1887; aged 61; died, July 20, of chronic nephritis.

John W. Douglas, Tampa, Fla.; Medical Department University of Louisiana, New Orleans, 1877; Civil War veteran; aged 86; died, July 22.

Robert W. White, Chincoteague, Va. (licensed, Virginia, 1883, under the Exemption Law); aged 72; died, July 21, of valvular heart disease.

Thomas P. Holman, Fayetteville, Tenn.; Washington University Medical School, St. Louis, 1869; Civil War Veteran; aged 91; died, July 17.

Frances A. Cady, Hutchinson, Kan.; Kansas City Hahnemann Medical College, 1903; aged 67; died, July 19, at a local hospital.

Abraham L. Kistler, Allentown, Pa.; Hahnemann Medical College of Philadelphia, 1883; aged 62; died, July 20, of heart disease.

Agnes Dolores Ward Arnold, San Francisco; University of California Medical School, San Francisco, 1923; aged 28; died, July 17.

Milton Eddy Barney, Warren, R. I.; Medical Department of the University of the City of New York, 1891; aged 70; died, July 13.

David Crockett McCalib, Laredo, Texas; St. Louis College of Physicians and Surgeons, 1898; aged 62; died, July 9, of myocarditis.

Edwin E. Endicott ⊕ Jackson, Calif.; Kentucky School of Medicine, Louisville, 1894; aged 51; died, June 24, of lobar pneumonia.

Robert J. Mainegra, New Orleans; New Orleans School of Medicine, 1869; aged 83; died, July 14, at the Presbyterian Hospital.

John Henry McGann, Akron, Ohio; Baltimore University School of Medicine, 1891; aged 72; died, July 20, of angina pectoris.

Gustavus Frederick Berger ⊕ Chicago; Rush Medical College, Chicago, 1897; aged 58; died, August 4, of angina pectoris.

Victor Malcolm Crothers ⊕ Meridian, Texas; University of Louisville (Ky.) School of Medicine, 1910; aged 38; died, July 22.

James Newell, Watford, Ont., Canada; Royal College of Physicians and Surgeons, Kingston, 1871; aged 76; died, June 4.

Martin E. Wilson, Bettsville, Ohio; Toledo Medical College, 1887; aged 73; died suddenly, July 14, of heart disease.

John B. Errin, Harper, Kan.; Hahnemann Medical College and Hospital, Chicago, 1865; aged 85; died suddenly, July 26.

Oliver Dana Bemis, Jonesville, Vt. (nongraduate); Civil War veteran; aged 83; died, July 15, of arteriosclerosis.

Archibald James Geikie, Toronto, Ont., Canada; Trinity Medical College, Toronto, 1879; aged 66; died, June 15.

Charles S. Herron, Carrollton, Ohio; Eclectic Medical Institute, Cincinnati, 1874; Civil War veteran; died, June 11.

Hayden Suffield Barnard ⊕ Chicago; Rush Medical College, Chicago, 1889; aged 58; died, August 2, of myocarditis.

William H. F. Smith ⊕ Chicago; Rush Medical College, Chicago, 1884; aged 79; died, May 25, of myocarditis.

Eugene Bedard, Pembroke, Ont., Canada; Quebec School of Medicine, Montreal, Que., 1877; died, June 22.

Henry Gathmann ⊕ Milwaukee; College of Physicians and Surgeons, Chicago, 1899; aged 61; died, July 21.

James Yates, Alpine, Texas (licensed, Texas, under the act of 1907); aged 78; died, July 18, of senility.

S. D. Stennis, DeKalb, Miss. (licensed, Mississippi, 1882); died, April 27, following a long illness.

John W. McIntyre, Selden, Miss.; Medical College of Ohio, Cincinnati, 1871; aged 80; died, July 16.

John S. Stephenson, Pindall, Ark. (licensed, Arkansas, 1903); aged 90; died, July 17.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

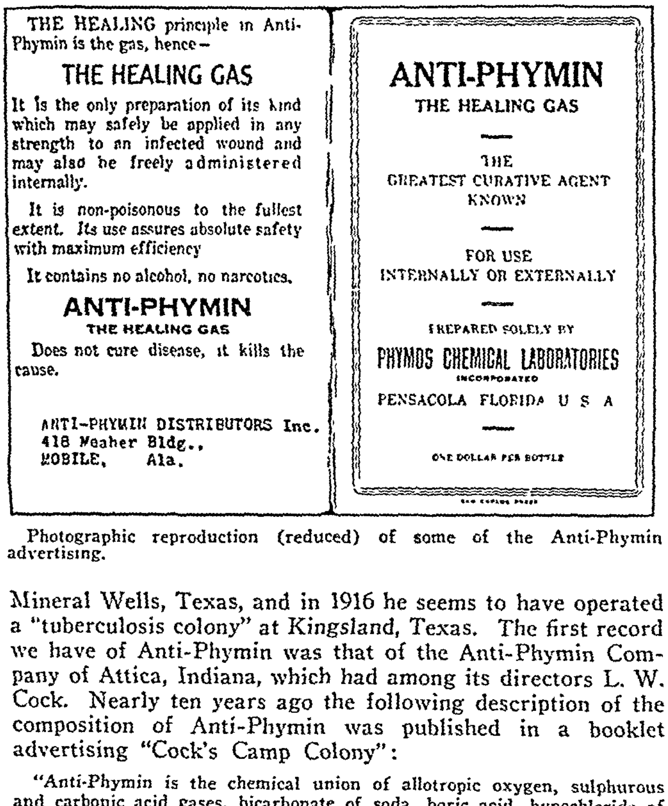
ANTI-PHYMIN

More Quackery of the Old Liquozone Type

Anti-Phymin, modestly described as "The Healing Gas" and the "Greatest Curative Agent Known" is at present prepared by the Phymos Chemical Laboratories of Pensacola, Florida. It is said to be "non-poisonous to the fullest extent"—whatever that means.

As is common with quacks, the exploiters of Anti-Phymin have a simple explanation for the complex facts of pathology. All disease, according to the Anti-Phymin thesis, is caused by fermentation; Anti-Phymin, it is claimed, stops the fermentation—and there you are!

From the material in the files of the Bureau of Investigation, Anti-Phymin seems to have had a long, although not honorable, history. It is said to be the discovery of one L. W. Cock, who, according to our records, was born in 1860, and was graduated by the Tulane University of Medicine in 1883. In 1911 he seemed to be at Attica, Indiana, in 1914 at Mineral Wells, Texas, and in 1916 he seems to have operated a "tuberculosis colony" at Kingsland, Texas. The first record we have of Anti-Phymin was that of the Anti-Phymin Company of Attica, Indiana, which had among its directors L. W. Cock. Nearly ten years ago the following description of the composition of Anti-Phymin was published in a booklet advertising "Cock's Camp Colony":



THE HEALING principle in Anti-Phymin is the gas, hence—

THE HEALING GAS

It is the only preparation of its kind which may safely be applied in any strength to an infected wound and may also be freely administered internally.

It is non-poisonous to the fullest extent. *Its use assures absolute safety with maximum efficiency*

It contains no alcohol, no narcotics.

ANTI-PHYMIN
THE HEALING GAS

Does not cure disease, it kills the cause.

ANTI-PHYMIN DISTRIBUTORS Inc.
418 Meaher Bldg.,
MOBILE, Ala.

ANTI-PHYMIN
THE HEALING GAS

THE
GREATEST CURATIVE AGENT
KNOWN

FOR USE
INTERNALLY OR EXTERNALLY

PREPARED SOLELY BY
PHYMOS CHEMICAL LABORATORIES
INCORPORATED
PENSACOLA FLORIDA U S A

ONE DOLLAR PER BOTTLE

Photographic reproduction (reduced) of some of the Anti-Phymin advertising.

> "Anti-Phymin is the chemical union of allotropic oxygen, sulphurous and carbonic acid gases, bicarbonate of, soda, boric acid, hypochloride of calcium, under a long continued and high degree of atmospheric pressure. Calcium water is used as a vehicle to hold the gases in solution and suspension."

Some years later (in 1921) the Anti-Phymin circular dispensed this information regarding the alleged composition of the "greatest curative agent known":

> "Anti-Phymin is a chemical union of allotropic oxygen and *ozonized* gases, obtained from sulphur, carbonic acid, bicarbonate of soda, boric acid, alum and hypochloride of calcium infused under super-heated atmospheric pressure with chemically affinitized water."

The same circular contained what purported to be: "an abstract from a paper read on 'The Rational Treatment of Tuberculosis' by E. Chancellor, St. Louis, Mo., addressed to the Section on Practice of Medicine at the 51st annual meeting of the American Medical Association." The circular gives the impression that this paper, alleged to have been read by Dr. Chancellor, dealt with the therapeutic value of

Anti-Phymin. The facts are, the minutes of the 51st annual meeting of the American Medical Association fail to show that Dr. Chancellor read any paper, although it does seem to be a fact that he was on the program to read a paper dealing with "The Rational Treatment of Tuberculosis with Compressed Air in Saturated Antiseptic Solution in Inhalation and Internal Use." The paper, however, was not read, possibly because of its unscientific nature. For many years Dr. Chancellor was a member of the American Medical Association, but was dropped from membership more than twenty years ago.

In 1916 Cock was conducting what he was pleased to call "Cock's Camp Colony and Laboratories" at Kingsland, Texas, although our records fail to show that he was ever licensed to practice medicine in that state. This was a "consumption cure" affair in which Anti-Phymin was a part of the "system of treatment." The patients—or victims—seem to have been given Anti-Phymin by mouth, by enema and externally.

From Texas the headquarters of Anti-Phymin seem to have gone to Florida, and Pensacola has the dubious honor of housing the concern that puts out this nostrum. It is recommended in such a broad field as sore-throat, pyorrhea, asthma, "disorders of the stomach," poisoning, "disorders of the kidneys and liver," diseases peculiar to women and venereal diseases. The statement is also made that it "has cured many cases of pulmonary and bone tuberculosis under the supervision of competent physicians." Also it is recommended for gall stones, pellagra, appendicitis and diabetes.

In common with mail-order nostrums, there is the usual fake "money-back" promise. To get his money back the victim has to furnish evidence that is satisfactory to the Anti-Phymin concern that the stuff has been "taken according to directions over a period reasonably proportionate to the gravity of the ailment for which it is used."

A bottle of Anti-Phymin was submitted to the A. M. A. Chemical Laboratory, which reports as follows:

> "A bottle of Anti-Phymin prepared by the Phymos Chemical Laboratories of Pensacola, Florida, was submitted to the A. M. A. Chemical Laboratory for cursory examination. It consisted of a dilute solution of sulphurous acid and necessarily a small amount of sulphuric acid. A very small amount of residue was left on evaporation. This was not identified but it precludes the possibility of partial neutralization of the acids present."

This report indicates that Anti-Phymin belongs in the class of "Liquozone," "Radam's Microbe Killer," "Oxytonic," "Septicide," "Zymotoid" and other nostrums containing as their essential ingredient sulphurous and sulphuric acids. It will be remembered that Radam's Microbe Killer was found by the federal chemists to contain sulphur dioxid and sulphuric acid in water. Liquozone had a similar composition, as did also Oxytonic and Septicide, and still later Zymotoid. One of the outstanding features of quackery is the lack of originality.

Uncinariasis in Porto Rico.—Jan. 1, 1921, the International Health Board began its treatment campaign against uncinariasis in Porto Rico, with eight inspectors. In 1923, a second unit was added by the board. In addition, the department of health provided inspectors for two other treatment units in 1921 and 1922, one of which was afterward used for sanitation. The other is still in operation. At the end of 1924 there were three doctors and thirty-five inspectors giving treatments, with the necessary office and technical assistants. All treatments are personally administered by the inspectors in house to house visits. During these four years, more than 400,000 treatments have been administered to 130,000 persons in the sanitated districts in the northwestern part of the island. Thus more than one eighth of the total rural population has received treatments. Porto Rico has spent a great deal of money on hookworm treatment. From 1904 to 1909 the anemia commissions spent approximately $183,500. From 1910 to 1920, the government spent $203,262.87. From 1920 to 1923 the department of health appropriated yearly $30,000, and in July, 1923, this was raised to $60,000 per year, which is the appropriation for the current year.—Hill, R. B.: *Porto Rico Health Rev.* **1**:17 (July) 1925.

Correspondence

"ATHLETIC STRENUOSITY"

To the Editor:—Your editorial (The Journal, July 25, p. 270) advocating "graded constant calisthenics, exercise, athletics and outdoor life" and decrying "competitive athletics" reads as if written by a nonathletic pacifist, who graced the bleachers (if he attended athletics at all) during and after his college life and who takes his exercises from a phonograph, radio or sport page.

"Care-of-the-body," "keeping-fit" and "survival of the fittest" are all hashed-over, time-honored subjects. The spirit of progress demands speed and endurance. Monotony and tedious routine do not yield happiness (the ultimate aim of life) to the average human being; variety, competition, victory and defeat do. The trained man in medicine who was a trained athlete finds few instances wherein athletics strenuously done produced any ill effects, especially in reference to the heart. On the other hand, he does find many persons, especially women (who were never athletes in any sense of the word), suffering from such maladies as antistrenuosity advocates would have us believe are found in old athletes.

Real men would rather be dead heroes than living opposites. That is why competitive athletics, business strife, war and life itself exist. Remove competition (the spirit to get ahead) from athletics and make it a graded (degraded) tea-party clinic and you will have the Oriental idea of lazy ease which, if you please, is "pay some one else to do it for you," and the American "go-ahead spirit" will be a thing of the past.

I have known a few soldiers in the late war who, though marked as "physically unfit," were so keen on the game that they drew "fit for A service" and who came through nobly "for the good of the service." I have also known a number of lads who, although marked—by examining physicians—as "unfit," played the game so well that they not only won honors for their alma mater but have lived long enough to enjoy the memories and to pass on to a succeeding generation some of that "go-get-it pep."

I am yours for more accuracy and speed.

John W. Shuman, M.D., Los Angeles.

To the Editor:—It gave me great pleasure to read your editorial on "Athletic Strenuosity." It is possible that it will not meet with favorable reception by a good many of your readers, but I am sure it is the kind of material that needs to be issued. I will be pleased to read it to my class in special physiology and hygiene—a class of twenty-three teachers of our state—a group of people who need just such information.

G. H. Van Dyke, M.D., Winona Lake, Ind.

To the Editor:—Your recent editorial in protest of excessive athletics is timely and heartening. Calling a halt seems to be the order of the day, not limited to athletics but overexercise in general.

Reference is made to a recent article in the *Saturday Evening Post* by that veteran Sam Blythe. In his usual vigorous manner he cautions golf enthusiasts. So, too, I note a quotation from the Indianapolis *News* on "Rest." As physicians, we must lead in a return to more sane practice in these matters.

Louis A. Bolling, M.D., Lafayette, Ind.

To the Editor:—That portion of the interesting editorial entitled "Athletic Strenuosity" (The Journal, July 25) dealing with college athletics contains several statements which, in my opinion, should not be permitted to pass unchallenged. I am well aware of the fact that support for these statements is to be found in the literature. If their validity is established, or can be established, they constitute an indictment of college athletics so serious that the forms of competition should be modified at once.

The significance of the statement that "oversized boys, tall and overweight," make excellent football material depends on one's definitions of oversized and overweight. Undoubtedly, boys who win a place on a big varsity team are usually, but not always, larger and heavier than the average of their classmates. It seems rather harsh, however, to call these beautifully developed lads oversized and overweight. Most of them carry no excess weight. Fat boys do occasionally make the team, but they play in line positions where the work is not nearly so strenuous.

In respect of lessened life expectancy of college athletes, the question is by no means settled. It is true that many life insurance companies look with disfavor on professional athletes engaged in strenuous sports such as running, wrestling or boxing as a life career. There has even been some inconclusive evidence that college sports influence mortality unfavorably. This is not a fitting place to review the literature, but in view of the position maintained in your editorial, it seems only fair to say that the investigations of that most distinguished student of heart disease, Sir Thomas Lewis, on British college oarsmen (whose proficiency, I am reluctantly compelled to admit, is equal to that of our own) permits him to say: "But it would appear that those who row in boat races are not short-lived, neither do they die of heart affections more frequently than do other men" (The Soldier's Heart and the Effort Syndrome, p. 31).

I have many times been compelled to accept responsibility in deciding whether young men with real or fancied heart disease should be permitted to take part in college athletics. This is a problem that concerns almost every physician. I think all will agree that strenuous competitive athletics should be forbidden when there is definite cardiac damage or even doubt as to its presence. I have, however, passed many men with no other evidence of abnormality than a systolic murmur, for football, crew, track and basketball, and have thus far never been given cause to regret such a decision. Although I have seen many athletes with hearts larger than the average, I have for many years looked in vain for hypertrophy developing *as a result of* college athletics.

Concerning heart strain, I must again quote Sir Thomas Lewis, who discusses this subject at some length and finally concludes: "If strain of the healthy heart exists, it is no more than a curiosity" (The Soldier's Heart and the Effort Syndrome, p. 33). I am willing to admit that there are a few case reports, the most convincing of which was made in the case of a star football player by Stengel, many years ago, which appear to indicate that the heart of a trained athlete may be "strained" or at least acutely dilated temporarily, to such a degree that serious symptoms ensue. In most of the cases reported, however, the possible influence of preexisting heart damage, recent infection or the inception of abnormal rhythm have not been rigidly excluded. Possibly acute dilatation occurs frequently; there is not an iota of evidence that it does any permanent damage to a healthy heart.

It is to be doubted whether the facial expression at the end of a race that the editorial writer attributes to heart strain is ever due to such a condition. We do not see it in those ill of heart disease. It may be due in part to breathlessness, but this should never be confused with heart strain. It is more often due to the intense mental effort to drive skeletal muscles already suffering from agonizing fatigue to a supreme effort. Sir Clifford Allbutt has said that he has many times seen undergraduates and others look ghastly at the end of a long spurt of exercises, but never saw a sound young man the worse for temporary distress of this kind.

An editorial in THE JOURNAL carries weighty prestige by virtue of its presence there. Statements of the type to which I have taken exception will be quoted avidly as authoritative by those opposed to college athletics. When careful examinations of all prospective candidates for college teams are made and the unfit excluded, and properly graded training is faithfully observed, there is, so far as I am aware, scant trustworthy evidence of physical harm to participants, except that due to trauma. One may well agree with the statement that "the distance of the run and the length of the boat race should be kept down to the figure that is perfectly safe for well hearts at the given age," but not necessarily with the view that these competitions as conducted at present are harmful.

CHARLES C. WOLFERTH, M.D., Philadelphia.

THE FACTS IN REGARD TO CANCER OF THE TONGUE

To the Editor:—In THE JOURNAL, July 25, p. 311, appears the following brief review of an article in the *Revista de Cirurgia* (4:55 [April] 1925), by Avelino Gutiérrez, entitled "Extirpation of the Tongue."

> Gutiérrez illustrates the technic he has successfully applied, but warns that the patient has, for a long time, to feed himself through a *stomach* tube. The glands *must* be removed, even with a *small* cancer in the tongue.

Physicians should know the real facts about the results in the operative treatment of cancer; if they do, they will realize that the percentage of cures of cancer depends today more on the improvement of the method and the extension of the education of the public and the profession, than on any extension of the operation, or improvement in the treatment with roentgen rays or with radium.

In THE JOURNAL, July 16, 1921, p. 220, I summarized my experience with cancer of the tongue for thirty years. My records failed to show a single cure of a cancer of the tongue of sufficient extent to justify an operation which would render the use of a stomach tube imperative for a long time. In the last ten years, and especially in the last five years, I have had the opportunity to observe and treat so many early cases of cancer of the tongue, such as Gutiérrez may refer to when he says "small cancer," that I have concluded that the routine complete excision of the glands of the neck for early cases of cancer of the tongue is not justifiable by the evidence. If the glands *are* involved, the probability of a five-year cure is less than 10 per cent.; if they are not involved, it is unnecessary to remove them. At the present time, in cancer of the lip, the reverse conclusion is true, because, if the glands are involved, the chances of a five-year cure are 50 per cent.

In cancer of the tongue, the glands that should be removed are less accessible than in cancer of the lip. In the tongue cases we must remove the subparotid group. To do this, one must excise the sternocleidomastoid muscle and the external jugular vein. In cancer of the lip it is sufficient to remove the submental and submaxillary group.

The great majority of the profession, and even of surgeons and pathologists, do not realize that the recorded evidence in the literature of operative cancer cures is based on operable cases. Inoperable cases are excluded. And then again among the cures, especially of the early cases, there is a large element of error in the pathologic diagnosis, in calling or including malignant warts, or areas of hypertrophy with suspicion of malignancy, cancer.

It is justifiable today to state that the chances of curing late cancer are as relatively small as the chances of curing early cancer are relatively large.

There is another side to the results of the operative treatment in the late stage of cancer when the glands are involved. The majority of those apparently free of recurrence for five years ultimately die of cancer, while the reverse is true of the operative results in the early stage of cancer, when the glands are not involved. Recurrence after five years of freedom is unusual.

In one of my clinics last fall in the Johns Hopkins Hospital, I was able to show to the class seven patients in perfect health from whose tongues I had removed, under procain, an early cancer, and at the same clinic there was but one patient free from the disease for more than five years, in which the cancer had been in a later stage, and the complete operation had been performed. Even in this case the glands removed had shown no evidence of metastasis.

The complete operation for late cancer of the tongue should consist of en bloc dissection of a large piece of the tongue, the floor of the mouth, a piece of or one half of the jaw, and the glands of the neck. When the operation is properly performed and the closed wound of the oral cavity heals without fistula, these patients swallow without difficulty and later talk so that they can be understood. But when a patient waits for the late stage of cancer, he runs from 11 to 50 per cent. chances of arriving at a hopeless stage, and, if it is still operable, he has reduced his chances of a cure from 62 to 12, and, in order to be cured, must submit to a mutilating operation.

For fully ten years I have employed the cautery as a routine in all operations for cancer of the tongue and mouth, both for the local growth and part of the dissection of the glands; and, for other parts of the dissection of the glands, alcohol sponges. These patients have received radium or roentgen rays before or after operation, or both. In spite of this I have been unable to see any improvement in the results, except those that can be explained by earlier intervention, smaller area of local growth, and absence of gland involvement.

I have been unable to find any evidence that roentgen rays or radium alone have accomplished a cure when the glands are involved.

In a few cases in which the glands of the neck were subjected to prolonged intensive irradiation, there has been extensive, hopeless gland involvement.

From my evidence, nothing can compare with the complete local excision with the cautery, and nothing but complete excision of the glands offers any chance of a cure when the glands are involved. In late cases of cancer of the tongue and mouth in which an experienced surgeon feels that the complete operation cannot be done, roentgen-ray and radium treatment may prolong life and give comfort, while attempts at complete operation in these advanced stages, except in the hands of the most experienced, not only shorten life, but increase discomfort.

The treatment of advanced cancer everywhere requires greater experience and more of the art and science of technic.

Many years ago, Snow of London wrote that the cases of cancer of the tongue which could be cured were those in which the local growth could be removed with the scissors through the mouth. This is true today. Our only improvement in technic is local anesthesia, the cautery, suture of the cauterized wound with silver wire, and splitting of the cheek to allow better exposure for the removal of the local growth on the base of the tongue. I now have one of these patients, with cancer of the base of the tongue, apparently well for more than four years, an observation, as far as I can ascertain, that has never been made before.

Joseph Colt Bloodgood, M.D., Baltimore.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

STERILIZATION OF CATHETERS

To the Editor:—I should like to know the best method of sterilizing an English catheter, an antiseptic that will not roughen the catheter, and the length of time of immersion.

Seward L. Landauer, M.D., Danville, Ill.

Answer.—Boiling or immersion of elastic catheters in antiseptic solutions of any kind roughens the coating. Catheters coated with white enamel may be boiled without spoiling their surface.

The best method of sterilizing elastic catheters is as follows: Immediately after use, the catheter should be washed vigorously with gauze wet with a solution of tincture of green soap and water, in order to cleanse the outside of the catheter. The lumen should be cleansed by forcing a solution of tincture of green soap and water, and then clear water, through the catheter. This is done by means of a syringe, and removes blood clots, shreds and similar matter. After this mechanical cleansing, the catheter should be placed in a formaldehyd sterilizer, in which a lamp is used to generate formaldehyd gas. The catheter should be left in the sterilizer for at least thirty minutes while the lamp is burning, and an additional thirty minutes before the sterilizer is opened.

To keep the catheters sterile and ready for use, they are suspended in a stand-glass equipped with a tightly fitting cover. Within this container, the formaldehyd vapors are produced by placing a few drops of a 4 per cent. formaldehyd solution (1 part solution of formaldehyde, U. S. P., and 9 parts water) on a cotton plug resting in a watch crystal lying at the bottom of the container. The solution must be renewed every twenty-four hours.

EXCLUSION OF SOUND

To the Editor:—Can you tell me of any device manufactured at present which, placed in the external auditory canal, will cut off all external noises; i. e., create a physiologically deaf ear? W. W., M.D., N. Y.

Answer.—We are not aware of any special device, which, when placed in the auditory canal, will exclude all external noises. It is well known that it is almost impossible to exclude external noises in rooms by way of partitions. Sound proof rooms usually have walls that are padded with a thick layer of felt. However, to exclude the sound from the external auditory canal it is not conceivable that anything excepting a very thick plug with a felt interlining might suffice. This, however, would probably be very cumbersome to wear. Ordinarily, moistening the finger with water or glycerin and inserting it firmly into the external meatus will exclude sound, but of course that could not be permanently applied to the ear. We regret that we cannot call our correspondent's attention to any definite device on the market for the purpose he desires.

COMPLEMENT FIXATION REACTION FOR TUBERCULOSIS

To the Editor:—What is the tuberculosis complement fixation reaction? Kindly define the Besredka antigen. Is this test established, or on the way to becoming established?

Samuel Ginsburg, M.D., Buffalo.

Answer.—The complement fixation reaction for tuberculosis is a serologic test performed much like the Wassermann reaction, except that the antigen used is different. As has been done with the Wassermann test, various kinds of antigen have been used in the complement fixation reaction for tuberculosis.

Besredka's antigen, which is a more recent discovery, is a bacillary emulsion of a four to six day old culture of a human strain of tubercle bacilli grown on a liquid egg medium and killed by heat. The medium consists of the yolk of egg, distilled water and sodium hydroxid; there is no glycerin or broth in it. Besredka obtained with this medium a profuse growth of tubercle bacilli in from forty-eight to seventy-two hours. The antigen is titrated in the usual way, and one sixth of the anticomplementary unit is used in the test.

The complement fixation test for tuberculosis is now considered by various investigators as specific when it is positive. A negative test, however, does not by any means rule out tuberculosis. Fried, for example, reported on 400 serums from tuberculous patients, fifty-six of whom were incipient cases, 115 moderately advanced and 229 far advanced; 89.75 per cent. of the 400 showed a positive complement fixation test with Besredka's antigen. On the other hand, among 639 patients ill with diseases of the heart, lungs, liver and kidney, among whom thirty were diagnosed as having tuberculosis, the complement fixation test with Besredka's antigen was positive in twenty-four of the thirty. Of the six who failed to react to the test, in two the involvement of the lungs was very extensive. Fried found also among fifty-one syphilitic patients, whose Wassermann reaction was strongly positive but who had no clinical signs of tuberculosis, that six had a positive reaction with Besredka's antigen. He concluded that the complement fixation test performed with this antigen is specific in tuberculosis but must be accepted with caution in a certain number of syphilitic patients without clinical evidence of tuberculosis.

MULLEIN—HIND'S ALMOND CREAM

To the Editor:—1. One of my patients is in the habit of gathering mullein (verbascum) along the roadside and making tea of it. Would you kindly write me a letter explaining the dangers of drinking mullein tea? This patient is continuously underweight and extremely nervous, although she does not think so. She wishes to be treated for something or other continuously. 2. In a separate letter, I would be greatly obliged if you would let me know the ingredients of "Hind's Honey and Almond Cream." There is something in this that seems to relieve the itch of winter pruritus better than anything I have found. But I do not like to prescribe a proprietary medicine.

J. J. H., M.D., Ill.

ANSWER.—1. Verbascum (more commonly known as the ordinary mullein weed) has been employed from time to time as a remedial agent; but its status is that of a little used and unessential drug. The leaves are demulcent and emollient, having no advantage over acacia, elm, etc. It is doubtful whether a decoction prepared from either the leaves or the flower would be any more harmful than decoctions prepared similarly from other relatively inert demulcents.

2. According to the report of the Connecticut Agricultural Experiment Station for 1914, Hind's Honey and Almond Cream has the following composition: "Essentially an emulsion containing alcohol, 7.28 per cent.; glycerin, 5.79 per cent.; partly saponified beeswax, 5.98 per cent.; crystallized borax, 1.49 per cent., perfumed with oil of bitter almond. Alcohol (by volume), 7.28; solids, 13.26; ash, 9.86; ether extract, 5.98; glycerin, 5.79; boric acid, 0.97; sodium, present; honey, sugar and heavy metals, none."

BACKACHE

To the Editor:—Recently I have had three or four patients, all male, with a chief complaint of "backache." Physical examination in these cases failed to reveal any cause for the symptom. Each gave a history of being awakened rather early in the morning with pain in the lumbar region, extending well to each side but not worse at any point. On arising and taking a little exercise, such as walking, the pain would leave: There would be no more discomfort until the next morning. One patient noted that he was always on his back when he awoke. The others were not sure on this point. There was no history of any trauma or injury. They had the condition even though they changed beds frequently. Any information you might furnish me in this connection will be highly appreciated. (Please omit my name.)

M.D., Georgia.

ANSWER.—It is practically impossible to give a definite opinion as to the condition described, although the evidence appears to indicate that it may be ostearthritis of the lumbar spine. Under the circumstances, it would appear to be desirable to have roentgen-ray studies made of the spinal column.

TUBERCULIN IN TUBERCULOUS ADENITIS—CALCIUM CHLORID AND ARTIFICIAL PNEUMOTHORAX IN TUBERCULOSIS

To the Editor:—Will you kindly send me some information on the use of: (1) tuberculin in tuberculous adenitis in children; (2) calcium chlorid in chronic tuberculosis in adults, and (3) artificial pneumothorax?

W. M. WINSTON, M.D., Kansas City, Mo.

ANSWER.—1. Tuberculin seems to be indicated when the disease is strictly localized, and especially in involvement of the cervical lymph glands. Its administration is carried on in the same way as tuberculin treatment for other purposes with doses that produce a slight local reaction, but fall short of a general one.

2. Calcium has been used in tuberculosis for various alleged reasons: to remedy calcium deficiency, to lessen inflammatory exudate, to favor calcification of lesions, and to lessen sweating and diarrhea; but it is not considered an essential remedy by critical students of the subject.

3. In spite of considerable disagreement among various authorities on the indications for artificial pneumothorax, there are several on which all seem to agree. The first is pulmonary hemorrhage so profuse or so frequently repeated as to endanger life. In the absence of hemorrhage, only advanced or moderately advanced cases of pulmonary tuberculosis not progressing satisfactorily might be considered possible candidates for this treatment, provided both lungs do not display active and progressing disease. The reason for these limitations is that induced pneumothorax carries with it dangers of its own.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALASKA: Juneau, Sept. 1. Sec., Dr. Harry C. De Vighne, Juneau.

NATIONAL BOARD OF MEDICAL EXAMINERS: Written examinations in Class A Medical Schools. Parts I and II, Sept. 16-18. All applications must be made on or before August 15. Sec., Dr. John S. Rodman, 1600 Walnut St., Philadelphia.

NEW HAMPSHIRE: Concord, Sept. 10-11. Sec., Dr. Charles Duncan, Concord.

NEW YORK: Albany, Buffalo, New York City and Syracuse, Sept. 21-24. Chief, Education Dept., Mr. Herbert J. Hamilton, Albany, N. Y.

OKLAHOMA: Oklahoma City, Sept. 8-9. Sec., Dr. James M. Byrum, Shawnee.

PORTO RICO: San Juan, Sept. 1. Sec., Dr. Diego A. Biascoechea, 3 Allen St., San Juan.

RHODE ISLAND: Providence, Oct. 1. Sec., Dr. Byron U. Richards, State House, Providence.

Rhode Island July Examination

Dr. Byron U. Richards, secretary, Rhode Island State Board of Health, reports the written and practical examination held at Providence, July 2-3, 1925. The examination covered 7 subjects and included 70 questions. An average of 80 per cent. was required to pass. Of the 10 candidates examined, 9 passed and one failed. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Harvard University	(1921)	85.6
Tufts College Medical School	(1923)	90.3
Columbia Univ. College of Physicians and Surgeons	(1913)	88.5
Hahnemann Med. College and Hospital of Philadelphia	(1925)	92.3
Jefferson Med. Coll. of Philadelphia	(1904) 87.6, (1924, 2)	88.1, 88.5
University of Pennsylvania	(1898)	91.1
University of Vermont	(1924)	87.7

College FAILED	Year Grad.	Per Cent.
University of Naples, Italy	(1922)	78.0

North Dakota July Examination

Dr. George M. Williamson, secretary, North Dakota Board of Medical Examiners, reports the oral, written and practical examination held at Grand Forks, July 7-10, 1925. The examination covered 13 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 16 candidates examined, 13 passed and 3 failed. Seven candidates were licensed by reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Northwestern University	(1925, 2)	79, 87
Rush Medical College	(1924) 81, (1925)	83
University of Illinois	(1924)	77
Queen's University, Kingston	(1924)	83
University of Manitoba, Winnipeg	(1923)	80
(1924, 3) 82, 85, 85, (1925, 3) 80, 83, 90		

College FAILED	Year Grad.	Per Cent.
College of Physicians and Surgeons, Chicago	(1897)	60
Laval University, Quebec	(1912)	72
University of Tomsk, Siberia, Russia	(1915)*	58

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Rush medical College	(1923)	Illinois
University of Michigan Medical School	(1910)	S. Dakota
University of Minnesota Medical School	(1916)	
(1922), (1923), (1924)		Minnesota
University of Nebraska	(1917)	Nebraska

* Graduation not verified by the American Medical Association.

Book Notices

Personal Hygiene Applied. By Jesse Feiring Williams, A.B., M.D., Professor of Physical Education, Teachers College, Columbia University. Second edition. Cloth. Price, $2 net. Pp. 414, with 42 illustrations. Philadelphia: W. B. Saunders Company, 1925.

The first edition of this book received wide approval, so that it now forms the basis of courses in many high schools and colleges. The author has taken advantage of the issuing of the second edition to add new material on scarlet fever, diabetes and goiter, and to emphasize other aspects of the work which have seemed to merit additional emphasis. This book is marked particularly by a sound conservatism in matters of scientific discussion and by a broad understanding of the problems of modern public health education. The chapter entitled "Science and Attitudes" contains sections on Christian science, chiropractic, osteopathy, the antivivisectionist, "patent medicines" and similar topics. The author is convinced that the prohibition of alcoholic drinks is a wise one from the standpoint of health and says so bluntly, offering some evidence to indicate that the steady use of alcohol increases mortality. "As regards coffee," he says, "it is unquestionably true that to some persons coffee is a poison" but that "some persons drink it without any deleterious effects that are noticeable. . . . It is unwise to say that coffee or tea will harm no one. It is foolish to condemn for all." As has been said, the book is one of the most reliable thus far available in the field that it covers.

Diagnostik und Therapie der Magenkrankheiten. Von Professor Dr. I. Boas. Eighth and ninth edition. Paper. Price, 42 rentenmarks. Pp. 817, with 151 illustrations. Leipsic: Georg Thieme, 1925.

This edition is replete with many changes and additions. A short chapter describes the parts of the stomach, giving the "Magenstrasse" full consideration. The article on peptic ulcer has been rewritten, and that on carcinoma considerably altered. There are many new reproductions of roentgenograms. The duodenal tube is described for the first time. Too much stress is laid on chronic gastritis. Many conditions which American clinicians would call colitis or atypical cholecystitis might fit in the author's description of chronic gastritis. The chapter on gastric syphilis, while larger than before, fails to give a concrete description of the symptomatology. American writers have described the condition freely and have established an almost definite combination of symptoms and signs that can readily suggest gastric syphilis. In fact, references to American authors on this subject are scanty. Nervous dyspepsia hardly appears to be a clinical entity but still is so described. It is encouraging to note that the author's view on the indications for surgical intervention in the treatment of ulcer is more in accordance with the surgeon's view than heretofore. Protracted cases of ulcer, failure of medical treatment, and economic reasons, aside from the generally accepted indications for surgical treatment, are now referred to the surgeon. The success of neumerous European and American surgeons bears out this view. The book, in general, is one of the best available works on the subject.

Industrial Poisons in the United States. By Alice Hamilton, A.M., M.D., Assistant Professor of Industrial Medicine, Harvard Medical School. Cloth. Price, $5. Pp. 590. New York: The Macmillan Company, 1925.

For many years, Dr. Alice Hamilton has given special attention to poisoning as it occurs in industry. She has now collected in one volume observations of her own, as well as those made by others interested in this subject, and presents what is probably the most complete discussion of the matter available in English. Her book is particularly worth while for American readers, since none of the available textbooks are particularly related to American conditions. As she points out in the preface, the control of industrial poisoning in this country is as yet in its infancy, and we do not have the statistical information and other important data concerning our industries that are freely available to the European investigator. Dr. Hamilton urges that physicians who see such cases record accurately the exact source of the metallic or other substance occurring in industry responsible for poisoning.

There has been an enormous increase in the interest of physicians in industrial poisoning since the Great War, and reports are now appearing in such publications as the *Journal of Industrial Hygiene*, which thoroughly exhaust many features of the subject. In the present volume, all the literature to Jan. 1, 1924, is included. In her opening chapter, the author considers such matters as air, hours of work, food and alcoholic drink. She then takes up each substance of importance, beginning with fourteen chapters on the subject of lead, in which she is generally recognized as our leading medical authority. Chapters are then devoted to all the other poisons, and a final chapter deals with the prevention of industrial poisoning. The book is completed by excellent indexes of both authors and subjects.

Handbook of Bacteriology for Students and Practitioners of Medicine. By Joseph W. Bigger, M.D., F.R.C.P.I., D.P.H., Professor of Bacteriology, University of Dublin. Cloth. Price, $5. Pp. 413, with 66 illustrations. New York: William Wood & Company, 1925.

In fulfilling the expressed wish to produce a common-sense textbook of bacteriology, the author has omitted historical matter and discussions of disputed points. The first half of the book includes the description of laboratory procedures; the preparation and uses of mediums; technics of animal inoculation; the preparation of vaccines; agglutination and agglutinin absorption tests; opsonic index; bactericidal power of serum; Wassermann and sigma reactions; hemolysis tests; the methods of obtaining clinical material; the procedures used in the identification of pathogenic organisms; bacteriology of milk and water; antiseptics and disinfectants, and a consideration of immunity. The remainder of the book describes the common pathogenic cocci, bacilli, protozoa and fungi, with a chapter on filtrable viruses. The more familiar terms are used throughout, but in the headings these terms are followed by less common ones and by the term recommended by the Committee on Determinative Bacteriology of the Society of American Bacteriologists. It is the author's belief that the names selected by the committee will gradually replace the older terminology. The book contains numerous illustrations, a few in color, and will probably prove a popular textbook.

Ergebnisse der medizinischen Strahlenforschung. (Röntgendiagnostik, Röntgen-, Radium- und Lichttherapie). Herausgegeben von H. Holfelder, H. Holthusen, O. Jüngling, H. Martius. Band I. Paper. Price, 45 rentenmarks. Pp. 748, with 454 illustrations. Leipsic: Georg Thieme, 1925.

The first chapter deals with the problems of diagnosing disorders of the large bowel and how these problems may be solved by roentgenology. The technic of the employment of contrast mediums is discussed in every detail, together with the various indications. The recognition of the special pathology is dwelt on at some length, and numerous illustrations facilitate the understanding of the text. The technically important problem of measuring rays is elucidated by a thorough discussion of the spectroscopy in the roentgenogram, and in explaining the principles and the theory of the tontometer. The chapter on carcinoma of the collum uteri is particularly interesting. Introductory remarks deal with the diagnosis of this disorder, and particular stress is laid on the investigation of the extension of this malignancy into the surrounding structures, which item is paramount as to prognosis and choice of the therapeutic intervention. The author expresses the belief that operation and irradiation are of equal value; therefore, if there is any chance for it, both methods should be employed. The leading principle always ought to be destruction of the neoplasm and the favoring of the site of the growth. "The expectation of a therapeutic success is not based on the extent of the operation, but on the removal of the bulk of the cancer; what the knife has removed has not to be dealt with by the defensive forces of the whole organism." The employment of radium in the therapy of cancer of the collum is discussed from a historical, theoretical and practical point of view. The various methods and the implements employed are explained and the ways of measuring the actinic influence are extolled. The author prefers the combination of radium and roentgen ray. The last chapter is devoted to the discussion of the radiotherapy of the esophageal cancer. The application of radium by sounds, by the esophagoscope and the retrograde application are described and a summary of the results is given.

Gynecology. By Brooke M. Anspach, M.D., Professor of Gynecology, Jefferson Medical College. With an Introduction by John G. Clark. Second edition, revised by the author, assisted by Philip F. Williams, M.D., Assistant Professor of Obstetrics, Graduate School of Medicine, University of Pennsylvania. Cloth. Price, $9. Pp. 752, with 532 illustrations. Philadelphia: J. B. Lippincott Company, 1924.

In this edition, Dr. Anspach has introduced much additional material, concerning the Rubin test, mercurochrome-220 soluble, insulin, protein therapy, and similar matters on which much work has been done during the last few years. The book is marked by a profuseness of excellent illustrations, which make it of exceptional service as a practical volume. Some of the illustrations in the first edition have been modified and others completely redrawn. If any criticism is to be made, it is of the extreme brevity of the discussions on the use of radium and roentgen-ray therapy in gynecology.

The Principles and Practice of Obstetrics. By Joseph B. De Lee, A.M., M.D., Professor of Obstetrics at the Northwestern University Medical School. Fourth edition. Cloth. Price, $12 net. Pp. 1123, with 1128 illustrations. Philadelphia: W. B. Saunders Company, 1924.

In the preface to this edition, Dr. De Lee says, "Something must be done to stem the tide of obstetric operating now prevalent, with its resultant maternal and fetal mortality." He has therefore adopted a strongly conservative attitude, and has drawn closely the indications for cesarean section, forceps, version, pituitary extract and bag dilators. It is quite impossible to review a volume of the scope of the present one in detail. It has established itself as a leading reference and textbook in its field; it is marked by an attempt at completeness in its references to previous work and to the views held by various leaders. At the same time it presents explicity the technic and theories of its author. It is in every sense of the word, therefore, an adequate text.

Diet in Health and Disease. By Julius Friedenwald, M.D., Professor of Gastro-Enterology in the University of Maryland School of Medicine, and John Ruhräh, M.D., Professor of Diseases of Children in the University of Maryland School of Medicine. Sixth edition. Cloth. Price, $8 net. Pp. 987, with 14 illustrations. Philadelphia: W. B. Saunders Company, 1925.

Six editions of this comprehensive work attest its general usefulness and merit. The authors present their material scientifically and without prejudice. They feel that the greater interest taken in diet during the last few years has contributed much, and the future will see even more important studies in this field. They have followed the modern trend closely, so that this edition represents in many sections a distinct advance over previous volumes.

The Medical Who's Who. Seventh edition. Cloth. Price, 30 shillings net. Pp. 770. London: Grafton Publishing Company Limited, 1925.

This volume was published annually from 1912 to 1918, when publication was suspended on account of the death of its editor. The present edition is the first since that date. The book is planned largely as a reference work for the laity, as well as for the physician. It includes the usual data of "who's who" volumes for practically all the physicians in Great Britain appearing in the Medical Register. The volume affords many points for interesting analysis as to the forms taken by specialization in England, the recreations of physicians and their general activities.

Principles of Surgery for Nurses. By M. S. Woolf, M.A., B Sc., M.R.C.S., Instructor in Surgery, and Visiting Surgeon to Outpatients, University of California Hospital. Cloth. Price, $3. Pp. 350, with 90 illustrations. Philadelphia: W. B. Saunders Company, 1925.

The author attempts to cover almost the entire field of clinical surgery. This constitutes the chief source of criticism; namely, that it embraces too much of the subject to be of real service as a manual for nurses. It is in reality a compend of surgery, brief and compact, but withal fairly complete. There are no chapters devoted to the general care and postoperative treatment of surgical patients, a most important phase of the subject for the nurse.

Medicolegal

Competent Witnesses and Evidence in Malpractice Case

(Heartwell v. Berliner (N. Y.), 207 N. Y. Supp. 737)

The Supreme Court of New York, Appellate Division, First Department, says that the physician who was made defendant in separate actions by Mr. and Mrs. Heartwell had attended Mrs. Heartwell at confinement. According to the testimony adduced by the plaintiffs, on the day following Mrs. Heartwell felt better, but the next day she became very ill and an offensive odor was noticed, which became worse from day to day, and her illness became so intensified that three days later the defendant, at the mutual desire of the family and himself, called in another physician; that the defendant examined Mrs. Heartwell internally, and stated that he found nothing, that she was absolutely clean; that her condition thereafter became so bad that two days later her husband called in a third physician, who took from within Mrs. Heartwell a large piece of decayed, fibrous substance, somewhat spongy, very dark, with a greenish tint, and having a very offensive odor, corresponding to the odor that had been emanating from Mrs. Heartwell. The plaintiffs contended, and sought to prove, that the substance removed was a part of the placenta, and claimed that it was negligently left within Mrs. Heartwell, and that the defendant was negligent in not discovering its presence and removing it.

For the purpose of proving that the substance removed was a part of the placenta, the plaintiffs offered the testimony of certain of Mrs. Heartwell's relatives, who were present at the birth, to the effect that the mass removed by the third physician was of the same appearance as an afterbirth. One of these witnesses testified that at the birth of her own daughter she saw the afterbirth, and also testified that she was present at the birth in the case at bar and saw the defendant take out a piece of the afterbirth with an instrument, look at it, and shake his head. Another witness had been present at the delivery of four children, and each time had seen the afterbirth. Neither of these witnesses, however, was permitted to testify that the substance removed by the third physician was of the same appearance as an afterbirth, the trial court holding that they were not qualified as experts so to testify. This was error, as the witnesses were qualified to testify whether, from their observation, the one thing resembled the other, having seen both. Each of the witnesses, having recently seen an afterbirth removed from Mrs. Heartwell, and having previously seen afterbirths removed from other women, should have been allowed to testify whether the substance removed by the third physician resembled an afterbirth, leaving it to the jury to give to their testimony such weight as in their judgment it was entitled to receive.

There also was erroneously excluded testimony concerning a conversation between the defendant and the third physician concerning the matter removed by the latter, on the ground that such physician was dead and could not be cross-examined. It is clear that the conversation was not barred by the statutory provision which forbids a witness being examined in his own behalf or interest concerning a personal transaction with a person since deceased, that provision being designed for the protection of such person's estate, and not for the protection of the witness.

Wherefore judgments dismissing the complaints are reversed, and new trials granted.

Why Hospital Not Liable for Negligence of Orderly

(Phillips v. Buffalo General Hospital (N. Y.), 146 N. E. R. 199)

The Court of Appeals of New York, in affirming a judgment that reversed one for the plaintiff and dismissed the complaint, says that the defendant was a charitable corporation which maintained a hospital. The plaintiff was a paying patient. Through the negligence of an orderly, who placed a hot water bottle against her body while she was in bed, unconscious, after an operation, she was severely burned.

The court below held that the defendant's claim of immunity was to be sustained because the plaintiff, by going to the hospital, impliedly waived all claims of liability growing out of the negligence of those who cared for her. The court of appeals is reluctant to permit an affirmance of the judgment to pass as an acceptance of the theory that the defendant's exemption from liability must rest on the waiver doctrine.

The doctrine of implied waiver is logically weak. It rests on the patent fiction that the patient has voluntarily relinquished a known right by coming to the hospital for treatment. As the trust fund doctrine of total immunity was rejected in the Hordern case on the ground that purity of aim did not justify a tort when the victim was a stranger to the charity, so it may be said with equal force that one who is brought unconscious to a charitable hospital as a patient does not assume the risk of malpractice on the part of the hospital; that one who pays a substantial sum for room and care is not in any true sense, according to common speech, the recipient of charity, and that only by an hyperbole may a hospital that collects $24.50 a week for board, lodging and care in a semiprivate ward be classed with the Good Samaritan, but it unquestionably has been stated to be the law of the state of New York that the beneficiary of a charitable trust may not hold the corporation liable for the neglect of its servants. *Hordern* v. *Salvation Army*, 199 N. Y. 233, 237, 92 N. E. 626.

The status of an orderly is determined by the nature of the work he is employed to do rather than by the payroll designation of his position. Broadly speaking, he is a hospital attendant who does general work, while a nurse is one who cares for the sick. The line of demarcation is not clearly drawn. The orderly at times does nursing, and a nurse may be put to the inconvenience of waiting on herself. Here the orderly was engaged in a specific act for caring for the sick woman, the plaintiff. He was not engaged in general work, such as running errands, lifting patients, or the like. The distinction is sought to be made between exoneration from liability for the negligence of physicians and nurses employed by the hospital to care for its patients, and for the negligence of cooks, maids and orderlies, who also act for the hospital in its care of patients. It is difficult to place such distinction on the unshifting rock. If a nurse should carelessly apply one hot water bottle, and an orderly should carelessly apply another to the same patient at the same time, and two burns were thus produced, it would require an acute mind to formulate satisfactorily the rule of liability that would exempt the hospital in the one case and hold it in the other.

The conclusion of the court of appeals is that the orderly, so far as he engaged in nursing, under the authority of the hospital, was supposed, like other nurses, to act on his own responsibility. If his act was unauthorized by the hospital, the rule of respondeat superior (let the master answer) did not apply. In neither case, as between hospital and patient, was his negligence the hospital's wrongful act.

Loss of Sight in Operating Moving Picture Machines

(Industrial Commission of Ohio v. Russell (Ohio), 146 N. E. R. 305)

The Supreme Court of Ohio says that the record disclosed that Russell was employed at a theater as an operator of moving picture machines; that the machines were operated by electric light of great intensity and brilliancy, throwing the most powerful ultraviolet light rays, at and through which he was compelled at all times to look; that during the latter part of 1918 he noticed that his eyesight in both eyes was becoming affected by such light; that after Jan. 25, 1919, he left his occupation and received treatment for his failing vision, and about a year later lost the sight of both eyes, from what was diagnosed as optic atrophy; and that it was caused by the prolonged action of ultraviolet light or rays coming from a silver-tipped carbon point used in moving picture machines, which he was required to look at almost continuously. On application to the industrial commission, his claim for compensation was rejected on the ground that his disability was not the result of an injury sustained in the course of or arising out of his employment, within the meaning of the workmen's compensation act of Ohio. An appeal was prosecuted to the court of common pleas, and to the petition filed therein the court sustained a demurrer. Later the court of appeals reversed the judgment of the court of common pleas.

The question presented for determination by the supreme court was, therefore, whether or not the petition set up sufficient allegations on which to base a claim for compensation under the provisions of the compensation law. This injury occurred before the enactment by the legislature of the statute providing for compensation for occupational diseases contracted in the course of employment, even if under the facts of this case the same came within the purview thereof. It has been held by this court, in the case of *Industrial Commission* v. *Cross*, 104 Ohio St. 561, 136 N. E. 283, that diseases contracted in the course of employment, and not occasioned by, or the result of, physical injury are not compensable as injuries under Section 1465—68, General Code.

A majority of the supreme court is of the opinion that, construing the petition most favorably to the pleader, there were no facts sufficiently set forth therein to bring the case within the terms of the compensation act; that no "injury," as contained in the statute and construed by this court, was shown to have taken place. There seems not to have been an accidental occupational disease, and it was conceded that there was no traumatic injury, or any accident, which caused this unfortunate condition, but rather the prolonged action of ultraviolet rays coming from a silver-tipped carbon point, which by slow, but sure, process injured the optic nerve and resulted in optic atrophy. In the state of the law at the time of the commission of these acts, sufficient was not contained within the statutory enactment to enable the commission to grant this relief, though the supreme court reaches this determination most reluctantly. The conclusion, therefore, of the majority is that the commission and the court of common pleas were right in their decision, and the court of appeals erred in reversing it; wherefore the judgment of the court of appeals is reversed. Five members of the court concur; two dissent.

Society Proceedings

COMING MEETINGS

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Hot Springs, Va., Sept. 16-18. Dr. James E. Davis, 111 Josephine Avenue, Detroit, Secretary.
American Electrotherapeutic Association, Chicago, Sept. 15-17. Dr. Richard Kovacs, 223 East 68th Street, New York, Secretary.
American Roentgen Ray Society, Washington, D. C., Sept. 22-25. Dr. Charles L. Martin, Baylor Hospital, Dallas, Texas, Secretary.
Association of Military Surgeons of the United States, New York, Oct. 8-10. Col. J. R. Kean, U. S. Army, Ret., Army Medical Museum, Washington, D. C., Secretary.
Colorado State Medical Society, Colorado Springs, Sept. 29-Oct. 1. Dr. F. B. Stephenson, Metropolitan Building, Denver, Secretary.
Idaho State Medical Association, Pocatello, Sept. 10-12. Dr. J. N. Davis, Kimberly, Secretary.
Indiana State Medical Association, Marion, Sept. 23-25. Mr. T. A. Hendricks, Hume Mansur Building, Indianapolis, Executive Secretary.
Kansas City Clinical Society, Kansas City, Mo., Oct. 5-9. Dr. James R. McVay, Rialto Building, Kansas City, Mo., Secretary.
Kentucky State Medical Association, Owensboro, Oct. 5-9. Dr. A. T. McCormack, 532 West Main Street, Louisville, Secretary.
Michigan State Medical Society, Muskegon, Sept. 8-10. Dr. F. C. Warnshuis, Powers Theatre Building, Grand Rapids, Secretary.
Mississippi Valley Conference on Tuberculosis, Lansing, Mich., Sept. 15-17. Dr. T. J. Werle, 209 W. Shiawassee Street, Lansing, Mich., Executive Secretary.
Missouri Valley, Medical Society of the, St. Joseph, Sept. 30-Oct. 2. Dr. Charles Wood Fassett, 115 East 31st Street, Kansas City, Mo., Secretary.
National Medical Association, Chicago, Aug. 25-28. Dr. Clyde Donnell, 121 Parrish Street, Durham, N. C., Secretary.
Nevada State Medical Association, Elko, Sept. 4-6. Dr. C. E. Piersall, 17 N. Virginia Street, Reno, Secretary.
Oregon State Medical Society, Medford, Sept. 2-4. Dr. C. L. Booth, 1021 Selling Bldg., Portland, Secretary.
Pennsylvania, Medical Society of the State of, Harrisburg, Oct. 5 8. Dr. Walter F. Donaldson, Jenkins Arcade, Pittsburgh, Secretary.
Utah State Medical Association, Salt Lake City, Sept. 7-12. Dr. William L. Rich, Boston Building, Salt Lake City, Secretary.
Washington State Medical Association, Seattle, Sept. 17-18. Dr. C. H. Thomson, Cobb Building, Seattle, Secretary.
Wisconsin, State Medical Society of, Milwaukee, Sept. 16-18. Mr. J. G. Crownhart, 558 Jefferson Street, Milwaukee, Executive Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to The Journal for a period of three days No foreign journals are available prior to 1920, nor domestic prior to 1923. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested).

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

35: 331-498 (July 15) 1925

Development of Vena Cava Inferior in Man. C. F. W. McClure and E G Butler.—p 331.
Structure of Cells in Tissues as Revealed by Microdissection. R. Chambers, New York, and G S Renyi, Budapest, Hungary —p. 385.
*Nature of Mitochondria. VIII. Cultivation. I E Wallin, Denver —p 403
Studies of Thyroid Apparatus XXV. Growth of Humerus and Femur After Thyro-parathyroidectomy and Parathyroidectomy. F. S Hammett, Philadelphia —p 421.
Comparison of Growth of Body Dimensions of Anencephalic Human Fetuses with Normal Fetal Growth. J. C. Nañagas, Minneapolis —455.

Nature of Mitochondria.—From the results of his experiments, Wallin says, a former conclusion that mitochondria are bacterial organisms appears to be verified. The coccoid bodies of the clouded medium, previously reported, are shown to consist of micro-organisms. The mitochondria of the fetus appear to utilize urea. There also appears to be a change in diet of the mitochondria after birth. It appears probable that mitochondria play an important rôle in the determination of cell division.

Archives of Dermatology and Syphilology, Chicago

12: 1-151 (July) 1925

*Therapeutic Action of Potassium Iodid in Experimental Syphilis of the Rabbit L Pearce, New York —p 1
*Erythredema Polyneuritis H R Foerster, Milwaukee —p 17.
*Lupus Erythematosus B Throne, Brooklyn —p 33
Pathologic Anatomy of Syphilis E L. Miloslavich, Milwaukee —p 41
*Spinal Fluid Findings in Pemphigus and in Dermatitis Herpetiformis Treatment of Pemphigus Vegetans A. Strickler and C. P. Brown, Philadelphia —p 48
A Heavenly Meeting A Sequel W J Highman, New York —p 55
*Urticaria Solaris Case L G Beinhauer, Pittsburgh —p 62
*Sensitization to Adhesive Plaster. W. P Brown, St Louis —p 69
Dermatitis Produced by the Portuguese Man-of-War. E. D Crutchfield, Galveston, Texas —p 72
Studies on Hair C H Danforth, Stanford University, Calif —p 76

Action of Potassium Iodid in Experimental Syphilis—The regular administration at biweekly and weekly intervals of small doses of potassium iodid (0.006 and 0.0003 gm per kilogram) to rabbits infected with *Spirochaeta pallida,* Pearce says, resulted in modifying the severity and in shortening the duration of the experimental disease as measured both by the character of the primary orchitis and of the general manifestations. The disease which developed in the rabbits treated with the iodid resembles in many ways that of normal rabbits of relatively high resistance in which few or no secondary lesions arise It is suggested that the therapeutic action of potassium iodid in experimental syphilis of the rabbit is associated with a stimulation or a reinforcement of the host's mechanism of reaction or defense.

Erythredema Polyneuritis. — Erythredema polyneuritis appears to be an entity of infectious origin peculiar to infants and young children The toxemia caused by this infection produces a sensory polyneuritis, chiefly peripheral, with chronic inflammatory changes in the spinal cord and nerve roots, resulting in that peculiar syndrome characterized by insomnia, anorexia, cutaneous irritability, vasomotor and trophic disturbances and dermatitis. The disease is further characterized by gradual development and protracted course with a tendency to relapses, and under favorable nursing attention, forced feeding, and removal of infectious foci, it usually terminates in recovery. That it may be an influenzal or postinfluenzal polyneuritis must be considered. A similarity, but not an identity with acrodynia, is to be recognized, and the name "erythredema polyneuritis," suggested by Paterson and Greenfield, seems most fitting in that it retains the descriptive term "erythredema" first used by Swift, and further indicates the pathologic characteristics first defined by Byfield. Foerster records four cases.

Lupus Erythematosus.—Throne failed to find any relationship of lupus erythematosus to tuberculosis, but, on the contrary, any causal relationship seems to have been eliminated.

Spinal Fluid in Pemphigus.—Strickler and Brown assert that pemphigus is a disease which probably originates in the nervous system. The agent probably responsible for the nerve changes in pemphigus is of the nature of a subacute or a chronic toxemia. *Bacillus pemphigus, Bacillus pyocyaneus* and possibly others may invade the blood stream of patients who have pemphigus, produce a secondary septicemia and possibly play an important rôle in the mortality of this disease. Arsenic, preferably in the form of cacodylate, given intravenously, offers the best mode of treating pemphigus. The authors also suggest, in addition, the administration of massive doses of phenobarbital by mouth.

Urticaria Solaris.—The case reported by Beinhauer is interesting, because it deals with a skin reaction produced by exposure to the sunlight. The reaction was a typical urticarial wheal, which could be duplicated by exposure to the ultraviolet rays of the mercury-quartz lamp. Other efforts to produce this reaction failed, making it evident that some rays from the sun and some rays produced by the mercury-quartz lamp were similar, producing the same reaction. As in other cases reported along similar lines, the patient belonged to an "allergic family." From the data obtained, Beinhauer is sure this was a case of specific sensitization of this patient's skin to the near ultraviolet rays.

Adhesive Plaster Dermatitis.—Brown reports a case of sensitivity to ordinary adhesive plaster manifested as a dermatitis.

Archives of Internal Medicine, Chicago

36: 1-151 (July 15) 1925

*Beneficial Effects of Barium Chlorid on Adams Stokes Disease. Three Cases A. E Cohn and S A Levine, Boston —p. 1.
Leukemia Relative Values of Cell Morphology and Peroxydase Reaction as Diagnostic Aids M N Richter, New York —p 13.
*Blood Volume VI Relationship Between Blood Volume, Total Corpuscle Content and Alkaline Reserve in Pernicious Anemia. W. Ashby, Rochester, Minn —p 24.
*Acute Intestinal Obstruction III Simple Obstruction. W. C. Foster and R W Hausler, Portland, Ore —p 31
*Intarvin in Diabetes M Kahn, New York —p 44
Methods of Recognizing Scapular Types in Living. W. W. Graves, St. Louis —p 51
*Value of Clinical Cardiodynamic Records. S D'Irsay, San Francisco —p 62
*Skin Capillaries in Scleroderma G E Brown and P. A O'Leary, Rochester, Minn —p 73.
Acute Febrile Pleiochromic Anemia with Hyaline Thrombosis of Terminal Arterioles and Capillaries. Undescribed Disease. E. Moschcowitz, New York —p 89
Vital Capacity in Artificial Pneumothorax. Mechanism and Factors Modifying Vital Capacity, Its Clinical and Prognostic Value in Collapse Therapy R A Bendove, Bedford Hills, N Y —p 94
*Dreyer's Tubercle Antigen Experiments Showing Failure of Antigen to Protect Guinea Pigs Against Experimental Tuberculosis H M Feinblatt and A H. Eggerth, Brooklyn —p 121.
*Inulin and Artichokes in Treatment of Diabetes H F. Root and M L Baker, Boston —p 126
Hypoglycemia Unassociated with Insulin Administration L Shih Hao and Chang Hsiao Chien, Peking, China —p 146

Barium Chlorid in Adams-Stokes Disease.—In three patients with complete heart block suffering from frequent attacks of syncope and convulsions (Adams-Stokes syndrome), the customary therapeutic procedures, including epinephrin, did not prevent the recurrence of attacks, whereas barium chlorid given by mouth, 30 mg. three times a day, in each instance promptly proved successful in rendering the patients free from attacks. The action of barium served to increase the irritability of the ventricles and to prevent the long asystolic periods that occurred in this condition.

Alkali Reserve in Pernicious Anemia.—In patients with pernicious anemia, the alkali reserve, as determined by Ashby by the method of van Slyke and Fitz, was frequently found to fall below the normal limits (from 63.1 to 77.5) given by those authors but after transfusions it tended to be normal.

Cause of Death in Intestinal Obstruction.—Foster and Hausler assert that death in uncomplicated cases of acute intestinal obstruction is due to starvation. The blood chemistry changes noted in uncomplicated simple intestinal obstruction are almost identical with those found in complete starvation. Hypochloremia is not present. Dehydration, in uncomplicated cases of simple intestinal obstruction, is usually very pronounced.

Intarvin in Diabetes.—Kahn reviews his three years of experience with intarvin. The results obtained may be summarized as follows: It nourishes patients, so that they gain weight. It allays their sense of hunger. It strengthens them, so that they do not feel so "weak and tired," the usual complaint of the diabetic patient. It never produces ketosis, i. e., beta-oxybutyric acid, diacetic acid or acetone. It never produced acidosis. This was determined in more than 100 cases by examination of the blood for the carbon dioxid combining power. It never yields glucose. Many more patients can be treated with intarvin, and thus insulin can be reserved for the patients with very severe diabetes who really need it.

Value of Cardiodynamic Records.—Consideration has been given by D'Irsay to the idea that in myocardial diseases that involve a decrease in myocardial tonus, the duration of the isometric period in its relation to the duration of the total systole might be disproportionately prolonged.

Skin Capillaries in Scleroderma.—The nail-fold skin capillaries were studied quantitatively by Brown and O'Leary in a series of ten cases, five of which presented a definite picture of scleroderma, and the remaining five essentially a Raynaud syndrome with associated sclerodermatous changes. It is apparent that the careful study of the skin capillaries will assist in the differentiation of these cases, but that further study of the primary group is necessary before it will be possible to make any deductions as to the etiologic rôle played by the capillaries.

Dreyer's Tubercle Antigen.—A study made by Feinblatt and Eggerth of the course of the disease in a group of twenty-five guinea-pigs experimentally infected with tuberculosis, of which group twelve received therapeutic vaccination with Dreyer's tubercle antigen and nine both prophylactic and therapeutic vaccination, four animals serving as controls, failed to adduce any evidence that this antigen protects guinea-pigs against tuberculosis, prolongs life, or in any way favorably influences the course of the disease.

Inulin and Artichokes in Treatment of Diabetes.—Clinically, the use of Jerusalem artichokes proved beneficial to a group of diabetic patients who used them for an average period of six months. They were added by Root and Baker to the diet without increasing glycosuria or producing it where previously absent, and when substituted for other carbohydrates in the diet, in certain instances, they rendered the urine sugar free. During the periods of these tests, patients were able to increase the other components of the diet and to gain weight with only a slight addition to their insulin dosage. Experimentally, the advantages of artichokes seemed to depend on the gradual liberation and slow absorption of levulose, although a small amount of glucose also was present. Baked artichokes raised the respiratory quotient in all cases, including cases with acidosis. The increase in the respiratory quotient tended to occur later and to be more prolonged than with levulose. The increase in blood sugar produced by artichokes was definite but less than that produced by an equivalent amount of carbohydrate in the form of levulose. Experiments conducted in order to make comparison with inulin derived from dahlia tubers showed the inulin did not cause a significant rise in the blood sugar percentage but that it had a slight, though definite, effect on the respiratory quotient and metabolism. Increases in the lipoids of the plasma resulted when artichokes and inulin, as well as levulose, were given patients. The greatest increases occurred in the more severe diabetic subjects when levulose was given. In subjects receiving both levulose and artichokes on different occasions, the latter provoked the lesser degree of lipoidemia.

Archives of Neurology and Psychiatry, Chicago

14: 1-138 (July) 1925

*Diagnosis of Spinal Tumors: Roentgen-Ray Treatment of Tumors and of Syringomyelia. K. Petren and E. Laurin, Lund, Sweden.—p. 1.
*Psychic Representations of Movement and Posture; Their Relation to Symptomatology. J. R. Hunt, New York.—p. 7.
*Sequelae of Epidemic Encephalitis Without Any Preceding Acute Illness (Chronic Encephalitis); Cases. C. W. Burr, Philadelphia.—p. 20.
Delinquents and Delinquency. W. Healy, Boston.—p. 25.
Mechanism of Papilledema. W. R. Parker, Detroit.—p. 31.
*Use of Lipiodol in Tumor of Spinal Cord. W. J. Mixter, Boston.—p. 35.
*Localized Proliferations of Arachnoid. Possible Relation to Origin of Tumors. N. W. Winkelman and G. Wilson, Philadelphia.—p. 46.
Cerebrospinal Fluid in Tumor of Brain. R. G. Spurling and C. L. Maddock, Boston.—p. 54.
Diminutive Visual Hallucinations in Hysterical Convict. N. S. Yawger, Philadelphia.—p. 64.
Intravertebral Treatment of Diseases of the Central Nervous System Exclusive of Cerebrospinal Syphilis. Experiment in Distribution of Dyes Introduced Subdurally. L. J. Pollock and J. Favill, Chicago. —p. 66.

Roentgenotherapy of Spinal Tumors.—Observations made by Petrin and Laurin show that roentgen-ray treatment has produced improvement in the symptoms of a diffuse myxosarcomatosis of the meninges; also in a case of intramedullary tumor the nature of which was unknown, and perhaps in a case of glioma.

Psychic Representations of Movement and Posture.—This study concludes the evidence on which Hunt bases his conception of the dual nature of the efferent nervous system. The simplest types of movement and the highest expressions of thought he regards as two extremes of the great expressive functions of the human organism. These two extremes are united by a series of ascending functional levels which are a recapitualation of evolutionary history and the motor functions of life.

Chronic Encephalitis.—The two cases cited by Burr are said to illustrate the fact that the poison of epidemic encephalitis may attack the central nervous system primarily and without any acute general symptoms of infection. The paralysis agitans type is, or seems to be, the most frequent.

Use of Lipiodol in Study of Spinal Tumors.—Mixter accepts lipoidol as a definite aid in the study of spinal cord compression. By combining demonstration of spinal subarachnoid block and the careful use of lipoidol, he says, it should be possible to increase definitely the successful removal of cord tumors, at the same time being in a position to make a positive diagnosis of tumor and advise laminectomy earlier in the course of the disease.

Arachnoid Proliferations as Cause of Tumor.—A tendency to localized arachnoid proliferation occurs in people past middle life. Trauma and infection are important contributing factors or may even be the exciting causes. Hence, Winkelman and Wilson suggest that endothelial tumors may take their origin from these cell clusters.

Archives of Ophthalmology, New York

54: 321-422 (July) 1925

Subconjunctival Cauterization of Sclera Over Ciliary Body with Galvanocautery to Reduce Intra-Ocular Pressure in Advanced Glaucoma. E. J. Curran, Kansas City, Kan.—p. 321.
Use of Tendon Tucker—Method of Suturing with Silk. F. E. Burch, St. Paul.—p. 333.
Glaucoma. H. Gifford, Omaha.—p. 337.
Coloboma of Mesodermal Layer of Iris. J. S. Briedenwald, Baltimore. —p. 349
Syphilitic Gumma of Eyelid; Case. E. B. Heckel and L. G. Beinhauer, Pittsburgh.—p. 352.
Visual Complex. A. B. Bruner, Cleveland.—p. 372.

Archives of Otolaryngology, Chicago

2: 1-10 (July) 1925

*Brain Tumor; Neuro-Otologic Examination in Seven Verified Cases in Posterior Fossa in Children. D. E. S. Wishart, Toronto.—p. 1.
Lateral Sinus Problem; Its Operative Solution. L. Richards, Boston.—p. 37.
*Correction of Hump or Saddle Bridge Nose. G. B. Jobson, Franklin, Pa.—p. 45.
*Dynamic Studies of Cerebrospinal Fluid in Differential Diagnosis of Lateral Sinus Thrombosis. G. L. Toby, Jr., and J. B. Ayer, Boston. —p. 50.

Brain Tumor Localization.—According to Wishart tumors of the frontal lobes do not interfere with cochlear or vestibular function. Subtentorial tumors which are completely outside the brain stem and the cerebellum, affect homolateral cochlear and vestibular function. Subtentorial tumors which are in the midline and which do not interfere with vestibular function. The interference tends to be bilaterally symmetrical and the functions of both vertical canal reflex arcs are affected before those of either horizontal canal. Unilateral intracerebellar tumors do not interfere with cochlear function. They do interfere with vestibular function. The function of the reflex arcs of the vertical canals will both be affected before those of the horizontal canals. The tumor will be found on the side opposite to the vertical canals with the function of which there is most interference.

Operation for Saddle Nose.—Jobson describes a method of operating in these cases in which the incision is made through the anterior part of the columella thus avoiding an unsightly scar.

Cerebrospinal Fluid in Lateral Sinus Thrombosis.—When obstruction of lateral sinus, jugular bulb, or internal jugular vein occurs, Toby and Ayer have demonstrated block by dynamic studies on the cerebrospinal fluid. The manometric studies on the fluid have proved reliable in the cases of complete block and highly suggestive in the case of incomplete block, not only in determining the presence of thrombosis but also as criteria as to which side is involved. Absence of block as determined by spinal fluid tests is also of value in the differential diagnosis of sinus thrombosis. The test has proved of special value in cases presenting double mastoiditis developing symptoms of lateral sinus thrombosis and in twenty-two cases no evidence of ill effect from the technic was noted.

Archives of Surgery, Chicago

11: 1-170 (July) 1925

*Basal Metabolic Rates and Their Relation to End-Results in Thyroid Disease. S. M. Jordan, Boston.—p. 1.
*Appendectomy. Technic. C. A. Roeder, Omaha.—p. 18.
*Abnormal Arteriovenous Communications. III. Effects on Heart, Blood Vessels and Other Structures. M. R. Reid, Cincinnati.—p. 25.
*Epithelioma of Cavities and Internal Organs of Head and Neck. A. C. Broders, Rochester, Minn.—p. 43.
Relationship Between Pathologic and Clinical Aspects of Diseases of Thyroid. H. C. Falk, New York.—p. 74.
Enchondroma of Femur with Repeated Recurrences and Ultimate Death. R. G. LeConte, W. E. Lee and W. P. Belk, Philadelphia.—p. 93.
*Experimental End-to-End Anastomoses of Colon. F. C. Lee, Baltimore. —p. 100.
*Injury, Including Irritation and Cancer. W. M. L. Coplin, Philadelphia. —p. 124.
*Reflex Spasm of Pylorus; Relation to Diseases of Digestive Organs. W. Hughson, Baltimore.—p. 136.
Review of Urologic Surgery. Transplanted Muscle in Resection of Kidney. A. J. Scholl, Los Angeles; E. S. Judd, Rochester, Minn.; L. D. Keyser, Roanoke, Va.; Gordon S. Foulds, Toronto, and J. Verbrugge, Antwerp, Belgium.—p. 152.

Basal Metabolism in Thyroid Disease.—Jordon asserts that the determination of the basal metabolic rate is of undoubted value in a clinic for thyroid disease: (*a*) to differentiate between hyperthyroidism and other conditions simulating this disease, especially neurocirculatory asthenia; (*b*) to differentiate between tumors of the thyroid with hyperthyroidism and those without it; (*c*) to aid in the estimation of the severity of the disease in both primary and secondary hyperthyroidism, thereby procuring definitely helpful data in the decision as to the extent of operative procedures throughout the treatment of the condition; (*d*) to estimate the adequacy of surgical treatment and the necessity for further treatment, when the usual procedure has been inadequate, and (*e*) to guide the treatment of myxedema. The clinical results of surgical treatment in a group of 1,258 patients that had been operated on are consistently indicated by the changes in the metabolic rate.

Errors in Technic of Appendectomy.—According to Roeder, pathologic adhesions follow nearly every appendectomy (85 per cent.) and result from trauma, infection and improper peritoneal coating. These are errors in technic and should be looked on as avoidable. Pathologic adhesions are undesirable and should not be looked on with indifference. They are the cause of local pain and tenderness, postoperative constipation and operable or fatal obstructions. Owing to its greater size, the uncovered mesenteric stump, if not retracting behind the cecum, is as frequent a source of adhesions as the uncovered sterilized appendix stump. Covering the mesenteric stump is a step in technic worthy of consideration. The crushing forceps, particularly of the angiotribe type, frequently leaves an infected crushed groove. The mucosa in the stump of the appendix can be sterilized entirely by a proper application of pure phenol. The inverting suture is ideal if penetration of the cecal mucosa can be prevented. When a patient exhibits postoperative adhesions or infection, including tetanus, the inverting suture as an etiologic factor must always be kept in mind.

Effect of Arteriovenous Fistula on Collateral Circulation.—Reid has found that an arteriovenous fistula is a powerful stimulus to the development of a collateral circulation, much greater even than is the stimulus of ligating the vessels. A fistula between artery and vein leads to marked changes in the vessels; the arteries proximal to the fistula become dilated and thin walled, and often showed marked degenerative changes. A true aneurysm may form in an artery proximal to a fistula. The veins dilate, and their walls may become thickened. A fistula between large vessels may lead to grave cardiac disturbances or even to sudden death. The circulation of a limb distal to a fistula is usually markedly impaired, even though there is an increase in the capillary bed. The surface temperature distal to a fistula is lowered, while after extirpation of the fistula it may be several degrees higher than it is normally. Arteriovenous or cirsoid aneurysms situated in the extremity of a growing individual may cause a considerable increase in the length of that extremity. In Reid's experiments, a kidney does not live after a complete reversal of its circulation.

Epithelioma of Cavities.—Three hundred and sixty-two cases of epithelioma of cavities and internal organs of the head and neck (18.1 per cent. of 2,000 cases of general epithelioma) are analyzed by Broders. In 9.39 per cent. of the patients, there was a family history of malignancy. A definite history of syphilis, or a positive Wassermann reaction, or both, was obtained in twenty-five (12.5 per cent.) of 200 cases in which such data were available, and representing all groups; while the same findings were obtained in seventeen (31.49 per cent.) of fifty-four cases of epithelioma of the tongue. In 33.14 per cent. of the patients, there was a previous crack, leukoplakia, ulcer or wart at the site of the cancer. Bad teeth were noted in 20.16 per cent. of the patients. Operation was performed in 70.99 per cent. of all patients; 27.9 per cent. presented inoperable conditions, and 1.1 per cent. refused operation after the diagnosis had been made. Of the 257 patients operated on, 66.53 per cent. had one or more groups of the regional lymph nodes or salivary glands removed, of which metastasis was demonstrated in 61.4 per cent. The submaxillary lymph nodes were involved more often than any others (77.14 per cent.); the cervical lymph nodes were involved in 51.42 per cent., and the sternocleidomastoid was involved in 20.95 per cent. Of the patients operated on, 79.76 per cent. have been traced; 19.51 per cent. are living, and 80.48 per cent. are dead. Of the living patients, 97.50 per cent. report good results. The have lived on an average 9.16 years since the last or only operation. Excluding immediate postoperative deaths, and deaths in which the cause was not determined, 4.37 per cent. of the patients obtained good results and lived on an average of 5.78 years after the last or only operation. Excluding postoperative deaths and deaths in which the cause was not determined, 95.62 per cent. of the deaths were caused by epithelioma. These patients lived on an average of 1.078 years after the last or only operation. Other valuable data are given.

Healing of Intestinal Anastomosis.—Material obtained from twelve aseptic end-to-end anastomoses of the large intestine of nine dogs is reviewed by Lee. It was found that the epithelial lining was restored by the sixteenth day in favorable cases, and that in a specimen thirty days old, normal crypts of Lieberkühn had formed to such a degree that they rendered the identification of the line of bowel union impossible from inspection of the mucosa alone. Formation of small cysts at the anastomosis was the rule. The muscularis mucosae showed definitely impaired restitution, while in the young anastomoses the submucosa was the seat of ulceration which later gave way in the older specimens to a fibrous tissue reaction with a corresponding vascular supply. A brief discussion of some of the factors entering into the healing process is given.

Cause of Cancer.—The evidence that cancer is a specific response to infection or to some parasite of a higher order is to Coplin as yet quite inconclusive.

Spasm of Pylorus.—The hypothesis is advanced by Hughson that spasm of the pylorus resulting from disease either in or adjacent to the abdominal cavity is solely due to irritation of the peritoneal surface.

Boston Medical and Surgical Journal

193: 91-140 (July 16) 1925

*Quinidin Sulphate in Heart Disorders. P. D. White and H. B. Sprague, Boston.—p. 91.
*Etiology of Abortion. D. Macomber.—p. 116.

Quinidin Sulphate in Heart Disease.—Fifteen cases are described by White and Sprague to illustrate the indications in particular, and also the contraindications, for the use of quinidin sulphate in disorders of the heart. When given carefully in suitable cases it is held to be a valuable drug and should not be neglected.

Etiology of Abortion.—The causes of abortion as given by Macomber are: (1) defective germ plasm (this may be either maternal or paternal); (2) mechanical, and (3) nutritional

193: 143-190 (July 23) 1925

Reminiscences of Student Life in Europe in 1879-1881. V. Y. Bowditch, Boston.—p. 143.
*Misuse of Cathartics and Laxatives. J. W. Dewis, Boston.—p. 152.
Vital Capacity of Lungs in Relation to Clinical Medicine. J. H. Arnett, Philadelphia.—p. 157.
*Quartz Lamp in Psoriasis. J. H. Swartz, Boston.—p. 162.
Palpation of Mastoid a Physical Sign of Value in Diagnosing Acute Mastoiditis. J. Prenn, Boston.—p. 165.
Place of Nonofficial Agencies in Health Work. J. Ritchie, Malden.—p. 166.

Misuse of Cathartics.—Dewis emphasizes these points: It is dangerous to prescribe cathartics in acute or painful conditions of the abdomen; it is wrong to administer them before abdominal operations; it is injurious, habitually, to give them in constipation; and bad practice to order purgatives without knowledge of their various physiologic effects, or to recommend them for patients when not sure of the ailment.

Quartz Lamp in Psoriasis.—Swartz reports excellent results from the use of the quartz lamp in the treatment of psoriasis. Ninety-nine per cent. of the patients responded, and he has been able to keep them free of the disease for a longer period than with other treatment.

Colorado Medicine, Denver

22: 231-258 (July) 1925

Ocular Tuberculosis, Particularly Kerato-Iritis. J. W. Thompson, Pueblo.—p. 232.
Gallbladder Pathology. W. Senger, Pueblo.—p. 237.
Osteochondritis Deformans Juvenilis. C. H. Heacock, Pueblo.—p. 240.
Cryptorchidism. G. E. Rice, Pueblo.—p. 243.
Professional Observations Made on Pleasure Trip to South Sea Islands, New Zealand and Australia. R. W. Corwin, Pueblo.—p. 245.
Hypertension. F. Singer, Pueblo.—p. 247.

Iowa State Medical Society Journal, Des Moines

15: 337-422 (July 10) 1925

Value of Gastro-Enterostomy in Treatment of Duodenal Ulcer. J. A. Hartwell and G. S. Dudley, New York.—p. 337.
History Taking of Chronic Gastro-Intestinal Disease. W. Goldie, Toronto.—p. 346.
Sources of Infection—Cases and Carriers. Don M. Griswold, Toronto.—p. 353.
Stenosis of Larynx. E. Mayer, New York.—p. 356.
Benign and Early Malignant Neoplasms of Mammary Gland. D. Macrae, Jr., Council Bluffs.—p. 358.
Diagnosis and Medical Treatment of Gastric and Duodenal Ulcer. W. H. Rendleman, Davenport.—p. 363.
Etiology and Surgical Treatment of Ulcer of Stomach and Duodenum. C. E. Dakin, Mason City.—p. 367.
Administration of Ethylene-Oxygen. J. S. Lundy, Rochester, Minn.—p. 371.
Passing of Country Doctor. Mrs. A. A. Crabbe, Traer.—p. 373.
Gold in Tuberculosis. J. W. Kime, Fort Dodge.—p. 375.
Acute Exanthemata. W. A. Bagby, Laurens.—p. 377.

Johns Hopkins Hospital Bulletin, Baltimore

36: 393-454 (June) 1925

*Placental Transmission. III. Amino-Acids, Nonprotein Nitrogen, Urea and Uric Acid in Fetal and Maternal Whole Blood Plasma and Corpuscles. E. D. Plass and C. M. Matthew, Detroit.—p. 393.
*Histopathology of Postencephalitic Parkinson's Syndrome. L. B. Hohman, Baltimore.—p. 403.
*Chemical Studies on Toxemias of Pregnancy. H. J. Stander, E. E. Duncan and W. E. Sisson, Baltimore.—p. 411.
*Multiple Osteomyelitis Due to Bacillus Paratyphosus B. G. L. Carrington, Durham, N. C., and W. C. Davison, Baltimore.—p. 428.
*Bile Pigment Content of Splenic Vein. A. R. Rich and W. F. Rienhoff, Jr., Baltimore.—p. 431.
*Formation of Bile Pigment from Hemoglobin by Action of Enzymes. A. R. Rich and J. H. Bumstead, Baltimore.

Chemistry of Fetal and Maternal Blood.—The fetal and maternal whole blood and plasma from twenty normal patients at the term of delivery were analyzed by Plass and Matthew for amino-acids, total nonprotein nitrogen, urea and uric acid. It was found that the amino-acid nitrogen is constantly higher in the fetal whole blood and plasma than in the maternal samples, thus confirming the investigation of Morse on plasma and of Bock on whole blood. The amino-acids, which are very probably necessary for the synthesis of proteins in the fetal organism, are thus seen to behave as do the other constituents, which are essential for growth (calcium and inorganic phosphates). It would seem that the preferment thus shown for the developing product of conception must be the result of the working of a definite physicochemical law which acts to insure the fetus an overabundance of the essential "building stones." Simple diffusion does not explain the facts, and "selective absorption" is too indefinite to be of any value. Largely by reason of this constant difference in the amino-acids and the established uniformity of the other nonprotein nitrogenous constituents in the circulation, the fetal whole blood and plasma were found to contain constantly more total nonprotein nitrogen than the maternal specimens. Such constant results have not been obtained by previous investigators, who came to the conclusion that these substances pass the placenta probably by simple diffusion. The urea and uric acid in the two bloods tend to be equal and in all probability the slight differences detected at times may have been due to analytical errors. No definite relationship could be detected between the variations detected in the individual substances and any facts obtained from clinical study of the patients.

Pathology of Parkinson's Syndrome.—In a summary of eleven cases previously reported and an additional new case seen by Hohman, the lesions of the postencephalitic Parkinson's syndrome were found to consist in the essentially chronic degenerative parenchymatous process with constant persistent evidences of inflammatory reaction, and widespread distribution of the lesions in every part of the central nervous system. The region of maximal and constant involvement is the substantia nigra.

Chemistry of Blood in Toxemia of Pregnancy.—Stander, Duncan and Sisson found that in normal pregnancy there is a slight decrease in the nonprotein nitrogen of the blood urea nitrogen. The carbon dioxid combining power is decidedly lower in pregnancy than in the normal nongravid state. In normal pregnancy the inorganic elements are within the limits for the normal nonpregnant woman. In nephritis toxemia, the most marked changes are noted in the ratios $\frac{\text{B. U. N.}}{\text{N. P. N.}}$ and $\frac{\text{B. U. N.}}{\text{U. N. per cent.}}$ both of which show an increase. The inorganic elements are within the limits for the normal nonpregnant woman. In nephritic toxemia, the most marked changes are noted in the ratios $\frac{\text{B. U. N.}}{\text{N. P. N.}}$ and $\frac{\text{B. U. N.}}{\text{U. N. per cent.}}$ both, of which show an increase. The inorganic elements are within the limits for normal pregnancy. Preeclamptic toxemia is accompanied by no outstanding variations, except a slight decrease in the $\frac{\text{B. U. N.}}{\text{N. P. N.}}$ and $\frac{\text{B. U. N.}}{\text{U. N. per cent.}}$ ratios. In eclampsia the following marked variations from the normal are noted: An elevation in the uric acid of the blood. A decrease in the carbon dioxid combining power, which is in proportion to the intensity of coma. An elevated blood sugar, which remains above normal for an appreciable time after the cessation of the convulsion. An increase in the ratio $\frac{[P]}{[Ca]}$ which is due to a high inorganic phosphorus value. The latter changes, as well as those noted in the sugar, suggest some association between carbohydrate and phosphorus metabolism, as well as a change in cell permeability.

Paratyphoid Osteomyelitis.—This case is reported by Carrington and Davison for two reasons, first, because of the unusual microscopic observation of motile bacilli in fresh blood preparations and, second, because of the rarity of such extensive osteomyelitis and periostitis due to infection by *B. paratyhosus* B. The right humerus, radius and ulna, both fibulae, the left ulna and scapula and the third to the ninth ribs on both sides were successively implicated at intervals during a period of two months.

Bilirubin Content of Blood of Splenic Vein.—The bilirubin content of the blood of the splenic vein was compared by Rich and Rienhoff, with that of the blood of the splenic artery and peripheral veins. In four out of ten cases, the blood from the splenic vein contained much more bilirubin than the control blood. This is evidence that bilirubin can be formed within the spleen. In pernicious anemia and in secondary anemia, the splenic vein blood may or may not contain more bilirubin than the blood of the splenic artery In a case of hemolytic jaundice the blood from the splenic vein contained much more bilirubin than that from the splenic artery or from a peripheral vein. Following splenectomy, the bilirubin content of the plasma fell to normal within forty-eight hours.

Formation of Bile Pigment.—The assumption is frequently made that there is present in the body an extracellular enzyme having the power to convert hemoglobin into bile pigment. Rich and Bumstead have been unable to demonstrate an enzyme of this nature in the blood plasma or in the spleen. Contrary to statements in the literature, bilirubin was never formed when hemoglobin was subjected to the action of trypsin.

Michigan State Medical Society Journal, Grand Rapids

24: 345-408 (July) 1925

Operation for Concealed Prolapse of Rectum and Sigmoid. L. J. Hirschman, Detroit.—p. 345.
Sanocrysin and Serum Treatment of Tuberculosis. B. H. Douglas, Northville, Mich.—p 347.
*Burt Lake Itch; Skin Eruption of Unknown Cause in Northern Michigan. W. E Forsythe, Ann Arbor.—p. 350
*Experience with New Type of Artificial Light. E. A. Pohle, Ann Arbor.—p. 351.
Historic Sketches of Medical Progress. J. G. R. Manwaring, Flint, Mich.—p. 353.

Burt Lake Itch.—The lesion described by Forsythe was first observed by him in 1919 in men who had been wading ing in the southern end of Burt Lake, Mich. It was also reported among campers on that end of Burt Lake who had bathed in the water. The condition was beyond question a result of skin contact with the particular water. This was proved experimentally.

Landeker-Steinberg Light.—Pohle relates his experience with the use of the Landeker-Steinberg light which emits a spectrum similar to that of the sun, at the same time eliminating completely or to a large extend the shorter ultraviolet waves. They have given so far nearly 700 treatments; they never have seen any bad reaction, and in a number of patients they have observed encouraging results. The cases treated included cases of rickets, tuberculosis, pelvic inflammatory disease, slow healing wounds, skin diseases, rhinitis, hay-fever, otosclerosis, osteomyelitis, pyorrhea, and ununited fractures showing no callus formation.

Nebraska State Medical Journal, Norfolk

10: 237-280 (July) 1925

Medicine of Yesterday. J. B. Potts, Omaha.—p. 237.
Modern Aspects of Nutrition. V. E. Levine, Omaha.—p. 248.
Glaucoma. E. B. Brooks, Lincoln.—p. 254.

Ohio State Medical Journal, Columbus

21: 473-536 (July) 1925

Medical Research and Medical Practice. J. E. Sweet, Philadelphia.——p. 477.
Gynecology of Tomorrow. G. G. Ward, New York.—p. 481.
Prognostic Value of Differentiating Immature Neutrophils in Blood. C. de Courcy and O. Thuss, Cincinnati.—p. 487.
Industrial Ophthalmology. M. P. Motto, Cleveland.—p. 488.
Case of Tuberculosis Verrucosa of Perianal Region. M. D. Shie, Cleveland.—p. 491.
Treatment with Radium of Uterine Hemorrhage from Benign Lesions. A. Strauss and L. A. Pomeroy, Cleveland.—p. 493.

Rhode Island Medical Journal, Providence

8: 103-122 (July) 1925

Heart and Its Management in Myxedema. H. A. Christian, Boston.—p. 109.

Surgery, Gynecology and Obstetrics, Chicago

41: 1-128 (July) 1925

Compression of Spinal Cord and Its Roots by Hypertrophic Osteo-Arthritis. H. L. Parker and A. W. Adson, Rochester, Minn.—p. 1.
Mechanism of Epididymitis. H. C. Rolnick, Chicago.—p. 15.
*Thrombo-Angiitis Obliterans. D. Perla, New York.—p. 21.
Diathermy with Metal Electrode as Possible Adjuvant in Treatment of Gonorrhea in Women. R. T. Lavake, Minneapolis.—p. 31.
Histogenesis of Heterotopic Endometrial Proliferations. M. R. Robinson, New York —p. 36.
*Hemangiomata of Bladder and Ureter. J. R. Caulk, St. Louis.—p. 49.
Postoperative Massive Collapse of Lung. G. Halperin, Chicago.—p. 53.
Aids in Predicting the Degree of Postoperative Thyroid Reaction. L. F. Sisle, Boston —p 57.
*Chronic Peptic Ulcer in Children. O. S. Proctor, Rochester, Minn.—p 63.
*Unusual Experience with Nephrectomy for Suppurative Nephritis. F. Kammerer, New York.—p. 70.
Separation of Acromioclavicular Joint. B. W. Moffat, New York.—p. 73.
Is Disease of Gallbladder Cause of Diabetes Mellitus? S. F. Adams, Rochester, Minn.—p 75.
Chemotherapy with Rivanol. G. deTakats, Budapest, Hungary.—p. 79.
Some Debatable Points in Surgery of Gall Tract. W. D. Haggard, Nashville, Tenn —p. 92.
Injurious Influence of Ultraviolet Ray on Old Roentgen-Ray Burns. L. L. McArthur, Chicago.—p. 97.
*Rhinophyma. J F. Grattan, New York.—p. 99.
*Umbilical Artificial Anus. A. L. Soresi, New York.—p. 103.
An Adjustable Splint. L R. Smith, Toronto.—p. 105.
Davis and Cushing Method of Salvaging Blood During Major Intracranial Operations. E. V. Hahn, Indianapolis.—p. 107.

Thrombo-Angiitis Obliterans.—An analysis is made by Perla of forty-one consecutive cases of thrombo-angiitis and a case is cited in which the coronaries and the aorta were involved. It appears from these cases that tobacco, typhus fever, or other previous infection play no part in the etiology and that the present treatment is unsatisfactory. The acute specific lesion described by Buerger was not found in the vessels of the amputated extremities. The deep arteries and veins in the affected limbs show various stages in the process of organization and recanalization of thrombotic lesions.

Hemangioma of Bladder and Ureter.—Two cases are reported by Caulk. The first case was a telangiectatic hemangioma of the bladder wall; the other, a pulsating cavernous hemangioma of the ureter simulating inoperable carcinoma of the bladder. The angioma of the ureter made its impression beneath the mucous membrane of the bladder in two places, eroding it with the production of hemorrhage, so that at first it gave every appearance of a vesical growth.

Peptic Ulcer in Children.—Among 8,260 cases of peptic ulcer observed in the Mayo Clinic only two were in children. Of a total of 1,596 gastric ulcers, one was in a child. Of 6,664 duodenal ulcers, only one occurred in a child. A third case is also one of duodenal ulcer. Although the first and third attacks were associated with coryza, and the second with tonsillitis; it seems that the ulcer was a chronic process activated by the infections, and not that three separate acute ulcers were formed with each of these infections.

Nephrectomy for Suppurative Nephritis.—Kammerer reports a case in which violent muscular contraction was responsible for a lesion to the kidney. The symptoms were all referred to the left kidney. Kammerer exposed the left kidney through a lumbar incision. The organ was somewhat enlarged. After the capsule had been stripped off and removed, the cortex appeared to be densely studded with miliary abscesses. Nephrectomy was done. The patient seemed to be doing well during the next few days. Death occurred on the eighth day from renal insufficiency. The necropsy revealed a suppurative nephritis also on the right side. Cultures were obtained (1) from urine a few days after operation; (2) from the left kidney immediately following nephrectomy; and (3) from the right kidney at necropsy. All showed the same organism in pure culture, *Bacillus coli communis*. This is a case that has practically the value of an experiment on the living human being. The patient, who had never suffered from any disease of the genito-urinary tract and in whom the necropsy revealed no pathologic condition of old standing in the kidneys, developed what at first probably was a unilateral hematogenous infection on the left side, following a trauma. During the woman's illness nothing pointed to an involvement of the right kidney.

Rhinophyma.—Grattan reports six cases cured by radical operation followed by roentgen-ray treatment and 50 per cent. trichloracetic acid treatments to relieve the associated hypertrophy of the skin and to render the operative scars invisible.

Umbilical Artificial Anus.—Soresi believes that the umbilical region presents many advantages over any other for the location of a permanent artificial anus on account of its superior sphincteric action and the comfort which results from adapting a protective device to this region.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine and Parasitology, London

19: *141-263 (July 16) 1925*

Collection of Acanthocephala in Liverpool School of Tropical Medicine. T. Southwell and J. W. S. Macfie.—p. 141.
Tetracampos Wedl, 1861, as Genus of Bothriocephalidae. W. N. F. Woodland.—p. 185.
Measure of Hookworm Infection in Communities. A. C. Chandler.—p. 191.
New Variety of Anopheles Marshalli Theobald from Belgian Congo. A. M. Evans.—p. 211.
Identity of Rarer Schistosomes of Man and Their Intermediate Hosts. F. G. Cawston.—p. 215.
*Incubation Period of Benign Tertian Malaria. G. de M. Rudolf.—p. 219.
Mode of Action of Bayer "205" on Trypanosomes. I. J. Kligler and I. Weitzman.—p. 235.
New Cestode from Nigeria. T. Southwell.—p. 243.
Some Characteristics of First Stage Larva of Dermatobia Hominis Gmelin. R. Newstead and W. H. Potts.—p. 247.

Incubation Period of Benign Tertian Malaria.—The incubation period of the naturally acquired benign tertian malaria is given by most authorities as being from six to twenty-one days with, however, wide variations. In thirty-four cases (chiefly from the literature) reviewed by Rudolf inoculated by means of anopheline mosquitos, the incubation period varied from seven to thirty days as measured by the first date on which parasites were found, and, in thirty-seven cases, from seven to twenty-five days as measured by the first rise of temperature. Of a series of fifty patients with general paralysis inoculated subcutaneously with *Plasmodium vivax*, 90 per cent. gave a rise of temperature of from 101 F. to 102.9 F. in less than twenty-one days after inoculation and 46 per cent. in less than ten days. The first rise of temperature over 103 F. occurred within twenty-one days in 84 per cent. and within ten days in 38 per cent. Intravenous inoculation of malarial blood gave an incubation period of from one to nineteen days in a series of sixty cases collected from the literature. In a series of twenty-eight cases inoculated intramuscularly, the incubation period varied from six to twenty-three days. In ten series of cases injected subcutaneously with malarial blood it was found (*a*) that when similar numbers of parasites were injected the incubation periods were of somewhat similar lengths, and (*b*) that when different numbers of parasites were injected the incubation periods showed a marked tendency to be shortest when the dosage of parasites was the greatest.

British Journal of Children's Diseases, London

22: 83-170 (April-June) 1925

Diet in Childhood. A. D. Fordyce.—p. 83.
Case of Hypertelorism. D. C. Muir.—p. 102.
*Some Unusual Sequelae of Tuberculous Tracheobronchial Adenitis in Children. J. M. Smellie.—p. 110.
Treatment of Injuries to Elbow in Children. B. W. Howell.—p. 116.
*Multiple Subcutaneous Abscesses in Infants. W. F. Castle.—p. 122.
*Hemorrhage in Early Infancy. C. F. T. East, F. Cove-Smith and F. O. T. Strange.—p. 128.
Erythema Nodosum. E. P. Weber.—p. 133.
*Transposition of Viscera with Peculiar Electrocardiograms in Infant Three Weeks Old. W. M. Feldman.—p. 136.

Sequelae of Tuberculous Tracheobronchial Adenitis.—Smellie reports as sequelae of this condition esophageal perforation and diverticula, bronchial and pericardial perforation. Cases of both types are cited.

Multiple Subcutaneous Abscesses in Child.—A case cited by Castle shows that multiple subcutaneous abscesses can occur in a child that is apparently quite healthy. It is a disease due to a blood infection, the causal organism being obtained and grown from the blood stream. Minute doses of autogenous vaccine and the mercury vapor lamp are of great assistance in the treatment of the condition.

Hemorrhage in Early Infancy.—One case reported by East et al. gave the impression of being one of melena neonatorum, but all the blood probably came from the uterus. The case evidently was one of severe hemorrhagic disease, of which the hemorrhages in the genital tract were only one symptom. The second case was one of true melena neonatorum. There was no doubt as to the source of the blood. It came from an ulcer in the first part of the duodenum, situated in the position of the duodenal ulcers found later in life. A third case presented a condition such as may be found in Henoch's purpura. There was a tendency to spontaneous hemorrhage into the coats of the intestine and also behind the peritoneum and into the lung. There was also abnormal bleeding from the operation wound resulting from an attempt to correct a wrongly diagnosed intussusception.

Dextrocardia with Peculiar Electrocardiogram.—The electrocardiogram in Feldman's case shows inversion of the R, S and T waves in Lead 1, but the P wave was upright and not inverted. Feldman thinks that it is possibly the accompanying congenital defect in the structure of the heart which determines the upright character of the P wave. This is said to be the only case of dextrocardia hitherto published presenting such a peculiar electrocardiographic tracing.

British Medical Journal, London

2: *47-96 (July 11) 1925*

Relationship of Radiology and Surgery. B. Moynihan.—p. 47.
*Clinical Value of van den Bergh Reaction for Bilirubin in Blood. J. W. McNee and C. S. Keefer.—p. 52.
Radiology of Gallbladder by Graham's Method. H. Cohen and R. E. Roberts.—p. 54.
*Leptospira in London Waters. E. Hindle.—p. 57.
*Ovarian Cyst in Aged Woman. J. W. Herkes.—p. 60.
Severe Generalized Dermatitis After Local Scald. R. Roche.—p. 60.
*Reducing Dislocation of Elbow.—A. S. Gubb.—p. 60.
Plugging Posterior Nares. H. S. Russell.—p. 60.
Fecal Fistula of Scrotum. F. O. Taylor.—p. 60.
Indigenous Operation for Strangulated Hernia. Q. Stewart.—p. 61.

Value of van den Bergh Reaction.—McNee and Keefer assert that the van den Bergh reaction is the best method so far available for the clinical investigation of the bilirubin content of blood serum or plasma. It has numerous advantages over other tests proposed subsequently: (*a*) its extreme delicacy; (*b*) is not given by other yellow substances which may color the plasma; (*c*) gives important qualitative distinctions between certain forms of icterus; (*d*) can now be used for a satisfactory quantitative estimation of bilirubin. The qualitative reaction may enable a positive diagnosis of obstructive or of hemolytic icterus to be made. Pernicious anemia, except in the stage of rapid temporary improvement, can be distinguished from secondary anemias. In some diseases (for example, catarrhal jaundice, subacute liver atrophy, cardiac failure) the reaction may pass through all the stages from completely delayed to prompt direct, as the disease progresses. As a rule, however, in the commonest type of jaundice (the toxic and infective hepatic group) no information of any diagnostic or prognostic value is given to the clinician.

Leptospira in Water.—A leptospira morphologically identical with *L. icterochaemorrhagiae,* was found by Hindle in London water. He has not yet succeeded in isolating a pure culture of the water leptospira, and therefore experimental animals have been inoculated with a mixture of organisms. In no case were leptospira recovered from the inoculated animals, except in three guinea-pigs which died the day after an intraperitoneal injection of 4 c.c. of water culture. The peritoneal fluid of these animals, examined after death, contained actively motile and apparently healthy leptospira. One of these guinea-pigs manifested symptoms that resembled those of a mild case of spirochetal jaundice, and subinoculations produced fever, in one case accompanied by rectal hemorrhages. Hindle is of the opinion that spirochetal jaundice may be added to the long list of diseases which owe their origin to insanitary conditions and lack of attention to public hygiene.

Ovarian Cyst in Aged.—Heckes' patient, aged 90, had a large multilocular ovarian cyst with multiple adhesions to the parietes. Previous to operation she was tapped every three weeks and each time from 16 to 18 pints of thick glairy fluid were drawn off. The tumor was removed and the patient made a good recovery.

Reducing Dislocated Elbow.—Gubb describes the method used by Curtillet of Algiers. It is as follows: The patient's arm is grasped firmly above the elbow with both hands, leaving the forearm free. The limb is raised to an obtuse angle with the trunk; then, a violent flail-like movement is imparted to the limb, whereupon the displaced forearm slips back into its place.

Heart, London

12: 1-170 (June) 1925

Effect of Exercise on Pulse Rate and Blood Pressure. R. D. Gillespie, C. R. Gibson, Jr., and D. S. Murray.—p. 1.
*Change in Form of Pulse Wave in Course of Transmission. J. C. Bramwell.—p. 23.
*Reactive Hyperemia in Man. T. Lewis and R. Grant.—p. 73.
*After-Histories of Men Suffering from Effort Syndrome. R. T. Grant. —p. 121.
Intra-Auricular Block Produced by Pressure or Cooling. A. N. Drury. —p. 143.

Change in Form of Pulse Wave.—Evidence is brought forward by Bramwell in support of the hypothesis that the change in form of the pulse wave in the course of transmission is an important factor in producing the characteristic features of the "water-hammer" type of pulse.

Reactive Hyperemia in Man.—When the arterial supply to a limb is occluded and released a state of vasodilatation is found. The degree of vasodilatation attained after long occlusions (ten minutes) is not dissimilar to that produced by brief exercise of the muscles included in the plethysmograph, and the durations of the reactions are of the same general order. The vasodilatation, according to Lewis and Grant, is not due directly or indirectly to a deficiency of pituitary hormone. Though deficient blood supply is its obvious primary cause, it is highly improbable that the reaction is due directly to the lack of any single blood constituent. It is thought to result from the accumulation in the extravascular tissue fluids of slowly diffusible substances, the products of metabolism during the period of circulatory disturbance. The mechanism responsible is frequently or constantly in action in physiologic circumstances and has much in common with that which locally controls the tissue circulation responding to tissue injury.

After-History of Effort Syndrome.—The after-histories of a series of 601 men suffering from the effort syndrome have been followed by Grant for a period of five years, and the method of investigation is described. Of these 601 men, 15.3 per cent. recover entirely, 17.8 per cent. improve, 56.2 per cent. remain stationary, while 3.2 per cent. become worse. The incidence of serious disease is 8.7 per cent., the most frequent infection being pulmonary tuberculosis (twenty-two cases). The deaths number fourteen (2.3 per cent.); 118 cases (19.6 per cent. of the series) had previously suffered from rheumatic fever or chorea. From the fact that the incidence of definite cardiac disease for the whole group during the period of five years is no more than 1 per cent. it is felt that incipient cardiac disease cannot be regarded as the underlying cause of the effort syndrome in anything but a negligible proportion of the cases. Further, there is found to be no material difference in the development of cardiac disease or in general health between those patients whose cardiac physical signs were normal and those who presented such signs as apical or basal systolic murmurs, a diffuse apex beat or extrasystoles. It is felt that whatever diagnostic significance may be attached to the cardiac physical signs, they may be neglected in arriving at a prognosis and that their chief value lies in directing attention more closely to the cardiovascular system for the detection of other and more definite signs of disease.

Japan Medical World, Tokyo

5: 145-172 (June 15) 1925

Virus of Experimental Encephalitis. R. Kobayashi.—p. 145.
*Etiology of Encephalitis Occurring Epidemically in Japan in 1924. I. Takagi.—p. 147.
Serologic Investigations on Japanese and Ainu. Y. Ninomiya.—p. 151.
Japan's Stand on Opium Problem. Y. Kusama.—p. 152.

Etiology of Encephalitis.—The virus obtained by Takagi from cases of encephalitis which occurred in Japan in 1924 is pathogenic to rabbits and the animal has typical symptoms. It can pass through animals. It is filtrable. Resistance to cold and heat is about the same as for ordinary bacteria. It remains alive in from 33 to 50 per cent. glycerin for three months. Cultivation is possible but no living organism was found. Takagi believes that the virus may enter the body through the nasal cavity and grows in the nasopharyngeal cavity. Then it enters into the blood stream and attacks the brain mainly and invades other organs. Finally it passes out of the body through the kidney. In immunized animals immune bodies are found in the brain and in the blood. Convalescent serum contains immune bodies. Although the virus of encephalitis and that of herpes are regarded as being identical or very similar, Takagi's virus and that of herpes are entirely different etiologically as well as in cross immunity tests.

Kenya Medical Journal, Nairobi, South Africa

2: 65-94 (June) 1925

Biology of Sleeping Sickness. G. D. Carpenter.—p. 65.
Plague in Kenya. R. N. Hunter.—p. 75.
Artificial Atresia in Kikuyu Women. H. R. A. Philip.—p. 86.

Medical Journal of Australia, Sydney

1: 641-682 (June 20) 1925

Educational Number.

Medical Journal of South Africa, Johannesburg

20: 283-312 (May) 1925

Puerperal Fever; Etiology. W. H. Maxwell.—p. 284.
Id. Bacteriology. II. J. McGibbon.—p. 285.
Id. Diagnosis. N. Hirschman.—p. 286.
Id. Treatment. A. Abelheim.—p. 288.
Id. Prophylaxis. I. P. Schabort.—p. 291.
Triumph of Sampson Handley. A. L. McGregor.—p. 202.
Asthenopia. A. G. Brinton.—p. 294.
Law and Doctor in South Africa. VI. H. de Villiers.—p. 296.

Practitioner, London

115: 1-96 (July) 1925

Diseases of Old Age. S. H. Rolleston.—p. 4.
Diseases of Middle Life. S. W. Hale-White.—p. 12.
Diseases of Adult Life. S. T. J. Horder.—p. 19.
Diseases of Adolescence in Girls. A. L. McIlroy.—p. 37.
Disabilities of Menopause. W. E. Fothergill.—p. 43.
Diseases of Adolescence in Boys. W. Attlee.—p. 49.
Diseases in Childhood. R. S. Frew.—p. 56.
Eye, from Infancy to Old Age. R. D. Batten.—p. 63.
Ear, from Infancy to Old Age. G. C. Cathcart.—p. 69.
Teeth, from Infancy to Old Age. J. G. Turner.—p. 77.
Rejuvenation: Endocrine Therapy of Testis. K. M. Walker.—p. 84.

South African Medical Record, Cape Town

23: 221-244 (June 10) 1925

Diffraction in Biologic Structures. A. Pijper.—p. 222.
Relationship Between Practitioner and Patient. M. Braun.—p. 226.
Psycho-Paralysis. H. A. Bodkin.—p. 229.
Human Mastication as Influenced by Civilized Manners and Customs. H. J. Schoeman.—p. 232.
Coordimeter of Professor Hess. D. J. Wood.—p. 235.

Bulletin de l'Académie de Médecine, Paris

93: 573-603 (May 26) 1925

*The Charcot Centennial.—p. 573.

The Charcot Centennial.—The tribute to Charcot included an address by P. Marie, analyzing the development of his conceptions in neurology; Marinesco described the impressions of a foreign student attending his courses, and V. Christiansen described the influence of Charcot in the development of neurology in Denmark.

Bulletin Médical, Paris

39: 605-632 (May 30) 1925

Sunlight and Rickets. P. F. Armand-Delille.—p. 611.
Indications for Diathermy. P. Lehmann.—p. 616.
*Local Freezing Treatment in Dermatology. P. Legrain.—p. 618.
Ultraviolet Rays for Rickets and Tetany. C. Lestocquoy.—p. 622.
Ultraviolet Rays for Tuberculous Glands. L. Bizard and L. Marceron.—p. 625.

Carbon Dioxid Snow in Treatment of Diseases of the Skin and Mucous Membrane.—Legrain reiterates that under carbon dioxid snow in a vascular nevus of medium size, the red discoloration and the tumor entirely disappear; for large ones, namely, for subcutaneous angiomas, radium is advisable. Carbon dioxid is used in infants, from 6 to 12 months, and even earlier, if the mole bleeds, and is progressing. The treatment is followed by disappearance of the pigment in pigmented moles. Two or three applications of freezing (from eight to twenty-five seconds' duration) are sometimes followed by healing of lupus erythematosus. The effect of carbon dioxid snow, in one minute applications, is rapid in warts (around the nails) refractory to other methods of treatment. A pronounced amelioration is noted in certain keloids, and even a rapid and complete disappearance of a hypertrophic cicatrix. The exposures should be of twenty seconds' duration, and given under a pressure of 1,500 gm. In acne rosacea, the lesion is rubbed with the blunt point for from five to ten seconds. Three or four applications, at ten or fifteen days' intervals, give satisfactory results. The treatment may be valuable also in roentgen-ray dermatitis, in small basal cell epitheliomas; in alopecia, leukoplasia and metritis colli.

Bulletins de la Société Médicale des Hôpitaux, Paris

49: 909-946 (June 19) 1925

Sunlight Deficiency and Rickets. G. Variot.—p. 909.
Infarct in Lung from Arsphenamin. F. Widal et al.—p. 912.
*Cheyne-Stokes Respiration. P. Merklen et al.—p. 917.
Origin of Sclerosis. E. Feuillié.—p. 921.
Sanocrysin in Treatment of Tuberculosis. E. Rist.—p. 937.
*Case of Congenital Jaundice. A. Chauffard.—p. 938.
*Case of Acquired Hemophilia. G. Paisseau et al.—p. 940.

Cheyne-Stokes Respiration is Not Connected with Alkali Reserve.—Merklen and his co-workers observed a case of Cheyne-Stokes respiration in a patient with nephritis. This type of respiration, which was intermittent at first, became permanent the last six weeks (polypnea of forty-five seconds, and apnea for twenty to twenty-five seconds). The alkali reserve varied between 42 and 45 during the intermittent and mild phase of the Cheyne-Stokes respiration, and from 52 to 55 (normal) at the permanent and pronounced phase. The same phenomenon of a normal alkali reserve was noted in Straub and Meier's seven cases. Another patient with nephritis and with a markedly lowered alkali reserve (28 and 29), presented only a slightly accelerated respiration and an inspiration deeper than usual. They conclude that no connection exists between the Cheyne-Stokes respiration and the alkali reserve.

Congenital Hemolytic Jaundice.—Chauffard reports a case in a woman, aged 40, in which splenectomy resulted in the disappearance of the jaundice within a few days, and in an apparently complete recovery. Examination of the blood two years later showed marked improvement, but hemolysis was still evident. No granular erythrocytes were found (before the intervention they ranged from 12 to 15 per cent.). It seems that the bone marrow, affected by the altered spleen, protects itself by producing granular erythrocytes. The toxic condition of the marrow, and the fragility of the blood corpuscles long persist, but do not provoke any noticeable reaction. The splenectomy checks the destruction of the blood corpuscles (the spleen process); while the improvement of their fragility occurs later (the marrow process). Evidently the jaundice and the hemolysis do not depend on each other, and may be dissociated by removing the spleen.

Syphilitic Hemophilia with Hematoma.—In Paisseau, Cayla and Hamburger's case the hemophilia in a syphilitic man, aged 63, was complicated by a subhyoid hematoma. The patient recovered under neo-arsphenamin injections. The hemophilic changes in the blood were apparently due to the syphilis.

49: 947-1006 (June 26) 1925

Splitting of Sodium Chlorid in Organism. E. Feuillié.—p. 949.
Case of Subcutaneous Calculi. A. Gilbert and L. Pollet.—p. 957.
Apparatus for Injection of Oxygen. Fialip.—p. 960.
Diabetes Insipidus from Intraspinal Anesthesia. Vialard and Darleguy.—p. 963.
Case of Lymphatic Leukemia. C. Morel et al.—p. 968.
*Chlorid Retention in Renal Sclerosis. L. Blum and van Caulaert.—p. 972.
*Frequency of Chlorid Retention. L. Blum and van Caulaert.—p. 981.
*Chlorid Retention in Acute Nephritis. L. Blum and van Caulaert.—p. 986.
Acute Delirium Explained After Death the Second Day as of Typhoid Origin. Courtois-Suffit and G. Garnier.—p. 989.
Death from Antitetanic Serum. J. Deroide.—p. 993.
Herpes Zoster and Varicella. A. Netter.—p. 998.
*Relation Between Herpes Zoster and Varicella. M. Petzetakis.—p. 1000.
*Chickenpox Succeeding Herpes Zoster. A. Panayotatou.—p. 1002.
Case of Meningococcus Septicemia. L. Merle.—p. 1004.

"Dry" Retention of Chlorid in Interstitial Nephritis.—In 1905 Ambard and Beaujard demonstrated that in certain cases of interstitial nephritis there may be pronounced retention of chlorids without the retention of water, a "dry" retention. Blum and van Caulaert found in a case of renal sclerosis, and one of a chronic affection of the kidneys complicated by an attack of acute nephritis, concentration of the blood, an increase of chlorids and a decrease of sodium. They assume that the pronounced decrease of sodium causes dehydration of the blood. Determination of the concentration of the blood (using the refractometer) and of the chlorid content reveals the dry retention. A salt-free diet was followed by a pronounced improvement of both patients. They conclude from their numerous observations that this retention is a common occurrence in interstitial nephritis, and corresponds to the gravity of the renal affection and the amount of salt in the food. The chlorid retention may appear also in acute nephritis, as in a personal case described.

Connection Between Herpes Zoster and Chickenpox.—Petzetakis observed a case of herpes zoster in a boy who had been in contact fifteen days before with a patient affected with chickenpox. He reports that during the recent epidemic of chickenpox in Alexandria (Egypt) he encountered four cases of herpes zoster. Panayotatou describes also a case of herpes in a mother, followed by chickenpox in her infant, who was breast fed, and a case of chickenpox in a child, aged 2, while a sister, aged 5, suffered with herpes zoster of the leg. In all the above cases, the subjects were children or adolescents.

Comptes Rendus de la Société de Biologie, Paris

92: 1481-1532 (June 5) 1925. Partial Index

Chronaxia and Muscle Degeneration. Apostolaki and Dériaud.—p. 1482.
Gangrene Anatoxins in Vaccination. Weinberg and Prévot.—p. 1484.
Immunization Against Cholera. M. Golovanoff.—p. 1489.
Genesis of Sarcoma. A. Carrel.—p. 1491.
*Agar-Vaccines and Local Immunity. Jausion and Diot.—p. 1495.
*Agar-Vaccines in Treatment of Skin Diseases. Jausion and Diot.—p. 1497.
Nervous System and Cholesterol Metabolism. A. Rémond et al.—p. 1503.
Lecithin and General Anesthesia. P. Manceau.—p. 1507.
Action of Bloodletting on Lactation. Porcher and Tapernoux.—p. 1521.
Conditions for Skin Reaction to Tuberculin. Brokman and Prokopowicz-Wierzbowska.—p. 1525.
*Filtrable Form of Typhoid Bacillus. B. Fejgin.—p. 1528.

Agar-Vaccines in Local Treatment of Suppurating Skin Diseases.—Jausion and Diot prepared a polyvalent vaccine using a peptonized agar gel for the culture medium. The melted vaccine (at 60 or 80 C.) was poured on a gauze pad, and applied locally. The application, covered with an impermeable material, was repeated daily the first five or six days, and at one day intervals afterward. A marked improvement was noted even after the first dressing. A case of sycosis of the beard, of three years' standing and with only short remissions under different treatments, was definitely cured within two weeks. An extensive papule in an analogous case healed in less than ten days. In a large staphylococcus abscess of the neck, persisting for two years, the dressing was applied after an incision, the purulent discharge stopped the fourth day, and the wound had healed by the tenth. One dressing brought about the discharge of a carbuncle, and the fever subsided the next day with complete cure two weeks later. A lupus patch that had ulcerated under radiotherapy, is healing well now since the agar-vaccine, obtained from the staphylococcus and the pyocyaneus, was applied for a week. Balanitis with erosions healed in eight days under daily agar-vaccine dressings, after an incision. The action of the applied vaccine is only local, like that of culture filtrates.

Filtrable Form of Typhoid Bacillus.—Experiments by Fejgin on guinea-pigs and rabbits showed that the filtrable form of the typhoid bacillus has the same pathogenic and antigenic properties as the nonfiltrable. The filtrable bacillus seems to be less toxic for animals. The invisible "virus" of typhoid fever may be only the result of the lytic action of the bacteriophage on the typhoid bacillus.

93: 1-72 (June 12) 1925 Partial Index

*Neurotropic Viruses C Levaditi and S. Nicolau.—p. 3
*Significance of Precipitation Test. Brocq-Rousseu and Urbain.—p. 7.
Resistance of Organism to Sarcoma. A. Carrel —p 10.
Changes in Serum from Antigen Lecomte du Noüy —p. 14
*Local Reactivity and Local Immunity. Zoeller and Manoussakis.—p 24.
Myeloid Degeneration of Glands in Syphilis. E. de Souza Campos.—p. 32.
*Trauma and Herpes Zoster Virus Le Fèvre de Arric and Millet —p. 45.
Insulin and the Liver Glycogen B. and C. Heymans.—p. 50.
Death from Inhibition H. de Waele —p. 60.
*Renal Functioning in Dogs. Antoine and Liegeois —p. 64.
Apparatus for Dialysis. L. Muller —p 68.

Associations of Neurotropic Ultraviruses.—On the basis of their experiments on rabbits, Levaditi and Nicolau say that inoculation with a neurotropic ultravirus may provoke the manifestations of a latent infection, caused by a different neurotropic ultravirus, or may even substitute the latter. The phenomenon seems to explain the association of influenza with epidemic encephalitis, and of herpes zoster with chickenpox.

Value of Precipitation Reaction in Tuberculosis.—The results of the precipitation test in tuberculous dogs were identical whether the serum and the antigen were mixed, or were only in contact with each other. Brocq-Rousseu and Urbain conclude that the test has no diagnostic value since a negative reaction frequently occurs with the serum of tuberculous dogs, and a positive with the serum of healthy animals. Evidently the fixation reaction should be preferred.

Streptococcus Toxin and Local Immunity.—Zoeller and Manoussakis injected intradermically streptococcic toxin in the area of a positive Dick test, aiming to induce local immunity in a receptive subject. In certain subjects the test became negative, or attenuated, eight days after the inoculation (Zingher). The local reactivity, similar to the general reactivity, differs in different persons, since in some a positive Dick test appeared after two, and in others only after nine injections of the toxin The injections should be made daily; in two cases five injections, made at several days' intervals, had proved ineffectual, while under four additional daily injections the Dick test became negative. A local immunity was also produced with repeated injections of protein; thus the local immunity appears to be the result of local desensitization, since the pseudoreaction is considered as a reaction of hypersusceptibility. The local immunity persisted after fifteen days; after one month and a half it was markedly attenuated, and tended to disappear.

Rôle of Trauma in Localization of Herpes Zoster.—After a blow on the parietal region of the rabbit skull, le Fèvre de Arric and Millet injected the animal by the vein with 1 c.c. of diluted herpes virus. It died six hours later with signs of encephalitis. Death was delayed when the injection was made one hour after the injury, and the disease did not develop with inoculation not until five hours after the trauma. Spinal puncture, made immediately after the blow, showed the presence of blood in the fluid. It seems that a rupture of the meningeal vessels enables the virus in the blood to pass into the cerebrospinal fluid, and thus affect the neuraxone. The inoculations made fifteen minutes before the trauma remained without effect. Phenomena of encephalitis appeared after a spinal puncture, shortly preceding the intravenous injection of the virus, and were absent with an injection made one hour after the puncture.

Kidney Function in Dogs.—Antoine and Liégeois' research demonstrated that the coefficient of renal functioning, such as the elimination of urea and of phenolsulphonephthalein, is higher in dogs than in the healthiest men.

Echo Médical du Nord, Lille

29: 307-318 (June 20) 1925

Functional Tests of Vegetative System. Combemale.—p. 307.
*Anaphylactic Sensitization. R. Pierret and C. Gernez.—p. 311.
Early Appendectomy. P. Picard.—p. 313.

Anaphylactic Sensitization.—Pierret and Gernez conclude from their experiments on guinea-pigs with horse serum that anaphylactic sensitization may be induced intradermally as well as subcutaneously, but that the latter route appears to be the more effective of the two.

Encéphale, Paris

20: 289-352 (May) 1925

*Differentiation of Dementia Praecox. H. Claude and G. Robin.—p. 289.
Theory of Mechanism of Inhibition in Central Nervous System. J. Ramsay Hunt.—p. 297.
Case of General Paralysis with Miliary Gummas. F. d'Hollander and T. Rubbens —p. 301.
Case of Mental Depression of Schizoid Type. M. Mignard.—p. 315.
Visual Hallucinations of Very Small Animals and Objects. Bouyer.—p. 327
Silent Fibroglioma in Cerebellum in a Dement. A. Prince.—p. 332.

Differentiation of Dementia Praecox.—Claude and Robin subject the fasting patient to the influence of 15-20 c.c. of ether, and note the response to certain suggested ideas of friends, affections, passions, events, and other emotional responses, in the effort to discriminate between dementia praecox and schizophrenia. It is a step beyond psychanalysis, and in some impressive cases there is an actual lucid interval, never surpassing half an hour. They give several cases in detail and add that there seems to be a curative action in addition, the patient becoming tranquilized and the psychotherapy becoming more effectual.

Journal des Praticiens, Paris

39: 401-416 (June 20) 1925

*Magnesium and Peptone as Cholagogue. Ramond and Borcesco.—p. 401.
Broncho-Esophagoscopy for Foreign Bodies. J. Guisez.—p. 402.

Cholagogue Action of Magnesium Associated with Peptone.—Ramond and Borcesco assert that magnesium sulphate, mixed with peptone, is a very active remedy for evacuation of bile from the liver as well as from the bile ducts and gallbladder. They prescribe magnesium sulphate, 5 gm.; peptone, 2 gm.; licorice powder, 1 gm., in half a glass of tepid water. The effect of the mixture may be enhanced by adding Vichy water or two tablespoonsful of glycerin. After the mixture is taken, the patient should lie on the right side for about ten minutes, and wait half an hour before breakfasting. The treatment is continued for ten or fifteen days in each month. Kaolin (from 5 to 10 gm.) may be added.

Lyon Médical

135: 715-746 (June 14) 1925

*Iritis with Herpes Zoster. Rollet.—p. 715.

Character of Iritis in and Complicating Herpes Zoster.—Among Rollet's nineteen cases of herpes zoster, ten were complicated by an infectious iritis (what he terms pseudozoster iritis), secondary to the trophic lesions of the cornea. In the remaining nine cases, the zoster iritis or irido-keratitis was primary, and of nervous origin. The affection was sometimes associated with changes in the eye tonus, hypertension or hypotension, and this should be guarded against. Instillations of methylene blue may be used to ward off lesions in the cornea. Subconjunctival injections of methylene blue are suggested in hypopyon: methylene blue, 0.01 gm.; saccharose, 0.20 gm., and water, 10 gm. Pain is best relieved by the roentgen rays.

Presse Médicale, Paris

33: 857-872 (June 27) 1925

*Metapsychics. C. Richet.—p. 857.
*Glycuronuria Test in Liver Insufficiency. Brulé et al.—p. 862.
*Ultraviolet Rays in Scleroderma. Ianichewski.—p. 863.
*Operation for Cholecystitis. J. Elgart.—p. 865.
*Necrosis of Adipose Tissue of Breast. J. Sénèque.—p. 865.

Present Status of Metapsychics.—The subject of Richet's terminal lecture at the University of Paris was metapsychics. In his opinion it should be considered and taught as a branch of physiology. The phenomena of subjective metapsychics are, he says, as certain as the most undeniable physiologic facts. By this he means knowledge of reality acquired by other routes than the ordinary sense perceptions. The phenomena of objective metapsychics are also well established. They include premonitions; collective hallucinations and Crookes' experiments on Douglas Home and Florence Cook. But here the experiments are rarer and more difficult, and therefore the proofs seem to be less decisive and more subject to criticism. Metapsychics is rapidly developing, he says, and will undoubtedly be of great significance in the future.

Glycuronuria Test and Deficiency of the Liver.—Brulé, Garban and Amer conclude that the glycuronuria test is not an index to the functioning of the liver. They list the causes of errors with Tollens' test. After allowing for all these errors, the test shows that glycuronic acid is constantly present in physiologic urine, and even in cases of grave affections of the liver.

Ultraviolet Rays in Treatment of Scleroderma.—Ianichewski treated two young women with the rays. The first sittings were of five minutes' duration (150 volts), and were gradually prolonged to thirty minutes, at a distance of from 30 to 20 cm. The irradiations were given at one day intervals, and the affected areas were exposed successively. The treatment resulted in a local, as well as in a general improvement. The cases are recent, and therefore no definite conclusions can be given.

Removal of Mucosa in Inflamed Gallbladder.—Elgart reports the removal of the mucous membrane from the body of the gallbladder, and curetting the neck, in cases of cholecystitis with thickened walls and adhesions between the gallbladder and the colon. This "endectomy" may be indicated in any chronic and in acute cholecystitis, if the walls of the gallbladder are not gangrenous, and the fever not high.

Necrosis of Adipose Tissue of the Breast.—Sénèque warns that the affection may be mistaken for a cancer. Referring to twenty-three cases he has found on record, he asserts that it occurs in women, most frequently between the ages of 50 and 60. The lesion may present a nodule, 1 cm. in diameter, sometimes a tumor 6 by 8 cm. In nine cases out of the twenty-three, a post traumatic ecchymosis was manifest. The tumor was *indolent (except in three cases)*, hard and adherent to the skin (except in three instances). Retraction of the nipple (four cases) and involvement of the axillary glands (five cases) are rare. In sixteen cases early diagnosed, the nodule was removed under local anesthesia. In seven cases, mistaken for cancer, the breast had been amputated.

33: 873-888 (July 1) 1925

Rosenthal's Liver Function Test. N. Fiessinger and J. Longchampt.—p. 873.
Recent Research on the Pituitary. L. Binet.—p. 876.

33: 889-904 (July 4) 1925

*Antigen in Treatment of Tuberculosis. L. Guinard.—p. 889.

33: 905-928 (July 8) 1925

Present Status of Ambard's Urea Excretion Coefficient. L. Ambard.—p. 905.

Methyl Antigen as Adjuvant in Treatment of Tuberculosis.—Guinard used Nègre and Boquet's methyl extract of tubercle bacilli, 1 c.c. of which corresponds to 0.01 gm. of the desiccated bacilli. The antigen was injected subcutaneously in the back, daily or at one day intervals. First 0.05 c.c. of the extract, pure or diluted *in artificial serum*, were given; the dose was increased by 0.05 c.c. up to a daily dose of 1 c.c., and each dose was repeated eight or ten times. The average duration of the treatment was five months and a half or six months; exceptionally from two to three or from nine to fourteen months. A mild local reaction appeared within a few hours after the first injections in from 12 to 15 per cent. of the patients, and persisted two days. Usually no general reaction was noted. The antigen was applied as an adjuvant of the usual sanatorium treatment in 142 patients, fifty-five of them being under observation from six to fourteen months. The course of the disease became slower or was even checked, the lesions showing a tendency to sclerosis. In several cases with fever, the temperature was restored to normal under the treatment continued for four or five months.

Progrès Médical, Paris

890-928 (June 13) 1925

Two Cases of Leprosy. G. Delamare.—p. 895.
*Carbon Dioxid Snow in Treatment of Alopecia. Lortat-Jacob.—p. 901.
Classification of Vitamins. C. Funk.—p. 902.

Freezing in Treatment of Alopecia Areata.—This treatment used by Lortat-Jacob succeeded not only in recent cases of alopecia, but also in a case of from three to seven years' duration that had been rebellious to other treatment. The patches were vigorously rubbed with the blunt point until the freezing is complete. Usually after three or four applications, given within three weeks, the hair started to grow in the affected areas. The method is harmless.

Schweizerische medizinische Wochenschrift, Basel

55: 549-572 (June 11) 1925

*Meningitis. W. Schnyder and E. Urech.—p. 549.
*Acute Pancreatitis. A. Christ.—p. 554.
*Case of Sodoku. Fulghieri.—p. 558.

Meningitis from Influenza Bacillus.—Schnyder and Urech report on seven cases of purulent meningitis caused by Pfeiffer's bacillus, and review fifty-six other cases from the literature. The diagnosis can be made only bacteriologically. The prognosis is unfavorable. Only six patients survived of the total sixty-three. Most of those that survived were left with permanent defects (blindness, deafness, etc.). The majority of the patients were small children.

Acute Pancreatitis.—Christ observed twenty-four cases of acute pancreatitis. Some of them had a fulminating course. In acute inflammation of a gallbladder containing stones, pancreatitis and fat necrosis are not infrequent. Cholecystectomy prevents this danger to the pancreas. Recurring acute pancreatitis may be due to fermentative processes from food containing too much fat. Absolute fasting and infusions of fluid by routes other than the stomach are indicated in these cases.

Rat-Bite Disease in Switzerland.—Fulghieri reports the first case of sodoku observed in Switzerland (Lugano). The patient had been bitten by a rat. The infection developed, although tincture of iodin had been applied immediately. The elderly woman recovered after a course of neo-arsphenamin.

Boletin del Instituto de Med. Exper. Buenos Aires

1: 5-246 (Feb.) 1925

*Transmission of Tumor Cultures. A. H. Roffo.—p. 5.
*Reducing Power of Rat Cancer Serum. A. H. Roffo.—p. 24.
Paradental Tumor in a Fish. A. H. Roffo.—p. 28.
Culture of Cancer Tissue Outside of the Organism. Id.—p. 43.
Refractometry of Cancer Serum in Diagnosis. Roffo and Rivarola.—p. 68.
Radio-Activity of Rubidium. Roffo and Landaburu.—p. 83.
Action of Rubidium on Blood Pressure. Roffo and López Ramirez.—p. 93.
Surgery in Toxic Goiter. J. Leyro Díaz and R. López Ramirez.—p. 122.
Lessons from Experience with Radiotherapy. J. A. Orfila.—p. 130.
Action of Rubidium on Frog Heart. Roffo and López Ramirez.—p. 136.
Treatment of Lymphogranuloma. A. H. Roffo.—p. 148.
*Cancer in Argentina. A. H. Roffo.—p. 159.

Transmission of Tumor Tissue Cultivated in the Test Tube.—Roffo reports that tissue from a spindle cell sarcoma in rats reproduced tumors of the same histologic type after cultivation outside of the organism for as long as two weeks. The malignant tissue cultivated in vitro does not lose its biologic properties.

Reducing Power of the Serum of Rats with Cancers.—Roffo states that the serum displays a more potent reducing power the more developed the tumor. He ascribes it to the condition in regard to the balance between the oxidases and the reducing substances. If these findings are confirmed in the clinic, they may prove an aid in diagnosis.

Cancer in Argentina.—Far from increasing in prevalence as the population has increased, there has been a notable decline in the proportional mortality from cancer. The apparent increase is due to the annual arrival of more than 100,000 adults each year, thus at the cancer age. The cancer mortality per thousand deaths was 69.61 per cent. in 1917; 74.53 per cent. in 1920, and 85.16 in 1923. For each hundred born in Argentina, 226 foreign born die from cancer, the Italians heading the list.

Revista de la Soc. de Med. Interna, Buenos Aires

6: 5-72 (May) 1925

Localized Bronchiectasia. F. C. Arrillaga and R. A. Izzo.—p. 5.
*Erysipelas and Diabetes. G. Peco.—p. 14.
Case of Liver Abscess Treated with Emetin. Martin Iriart.—p. 20.
Genito-Dystrophic Senile Changes in the Female Skin. Izzo.—p. 24.
Graham's Test of Biliary Apparatus. Saralegui et al.—p. 39.
*"Hilus Dance." E. V. Merlo.—p. 66.

Erysipelas in Grave Diabetes.—Peco relates that the erysipelas developed with high fever in a woman, aged 54, with diabetic acidosis. The infection was treated with streptococcus antiserum and insulin, with prompt recovery. She escaped thus diabetic coma, and requires less insulin now, three months since the infection.

The "Hilus Dance."—Merlo describes a case of heart disease presenting what is alleged to be a roentgenoscopic sign of valvular insufficiency of the pulmonary. This phenomenon consists in an actual dance of the shadows of the hilum of the lung, that is to say, of its vessels. The patient was a farmer, aged 51, with heart disease since the age of 18, and symptoms from an earlier age. The "hilus dance" seems to be a local phenomenon not connected with pulmonary insufficiency, although in both Pezzi's case and the one here described the pulmonary was dilated and sclerotic.

Archiv für klinische Chirurgie, Berlin

136: 1-210 (June 4) 1925

Origin and Diagnostic Significance of Osteoporosis. G. Pommer.—p. 1.
Rat-Bite Fever. B. Ebert and E. Hesse.—p. 69.
Cysts and Fistulas of Lateral Branchial Canal. Reinecke.—p. 99.
Cerebral Abscesses After Gunshot Injuries of Skull. Bruskin.—p. 109.
Treatment of Bladder Tumors, H. Boeminghaus.—p. 115.
Strangulated Abdominal Hernia. Schäffer.—p. 128.
Tendon Sheaths of Fingers and Wrist. G. Hauck.—p. 150.
Acute and Chronic Tendovaginitis. G. Hauck.—p. 161.
Postoperative Parotitis. F. W. Kaess.—p. 190.

136: 211-426 (July 4) 1925

Experimental Circulatory Disturbances in Cerebral Vessels: Magnus and Jacobi.—p. 211.
*Abdominal Hernias. P. Walzel-Wiesentreu.—p. 221.
Snapping Finger and Stenosis from Tendovaginitis of the Flexor Tendons. F. Kroh.—p. 240.
*Artificially Produced Diseases. E. Hesse.—p. 277.
Metabolism in Fractures. F. Dannheisser.—p. 292.
Fibrous Osteitis and Sequelae. E. Bergmann.—p. 308.
Interstitial Calcinosis. F. Schulze.—p. 339.
Influence of Pressure on Growth in Length. A. Schubert.—p. 369.
Callus Formation in Parathyroidectomized Animals. Dieterich.—p. 388.
Pancreas Disturbances After Resection of Duodenum. Bundschuh.—p. 414.
Case of Synostosis Between Radius and Ulna. K. Vogeler.—p. 422.

Fat Resection in Herniotomy.—Resection of an excess of fat tissue in the abdominal wall, in patients with hernias in the middle line, helps to prevent recurrence of the hernia by strengthening the abdominal wall. Walzel-Wiesentreu describes the technic as practiced at Eiselsberg's clinic.

Artificially Produced Affections.—Hesse gives a summary on the subject, basing his contribution especially on 500 cases of his own experience in Russia. It is not possible to give here more than a brief list of the very varied conditions of deliberately produced diseases; most of these self mutilations were performed to evade service in the army. The most important ones are as follows: artificially produced cellulitis by injecting liquid feces, saliva, crude oil, turpentine or metallic mercury; artificial granulomas produced by subcutaneous injection of machine-oil—similar lesions have been observed after paraffin or camphor oil injections; ulcers by burning or corrosion with certain vegetable products or with acids or strong alkalis; edema following constriction of limbs, subcutaneous emphysema by injecting large amounts of air; contracture of joints by fixation in extreme positions over long periods of time; hernias produced by violent pressure and dilatation of the external inguinal ring; rectal prolapse after tearing the external sphincter muscle, and deliberate gonorrheal infections of the urinary tract.

Deutsche medizinische Wochenschrift, Leipzig

51: 1015-1054 (June 19) 1925

*Induced Cutaneous Allergy. E. Moro and W. Keller.—p. 1015.
*Reactions to Lipoids. H. Sachs et al.—p. 1017.
Biology. H. Much.—p. 1018.
*Failures in the Diagnosis of Cancer. F. Munk and P. Neumann.—p. 1020.
Cerebral Circulatory Disturbances. F. M. Groedel and G. Hubert.—p. 1023.
Pneumocephalus Therapy in Meningitis. P. Heymann.—p. 1025.
An Epidemic of Colds. G. Elkeles.—p. 1028.
Flat Chest and Physical Exercise. W. Siebert.—p. 1029. Cont'd.
Green Streptococci. III. W. Rother.—p. 1031.
Singultus in Influenza and Encephalitis. S. Kalischer.—p. 1031.
Eye Changes in Systemic Diseases. W. Feilchenfeld.—p. 1033.
Anuria of Seven Days' Duration. R. Hensel.—p. 1034.
Dangerous Floor Wax. A. Hofmann.—p. 1037.

Tuberculous Skin Allergy Following Simultaneous Injection of Tuberculin and Smallpox Vaccine.—It has been demonstrated frequently that the injection of Old Tuberculin in a noninfected subject does not produce a tuberculin-sensitiveness. Moro and Keller injected intracutaneously in noninfected infants (tested with tuberculin), a mixture of O. T. and diluted smallpox vaccine, and found that six out of seven infants reacted very strongly to O. T. three to four weeks after the vaccination. In analogy to recent experiments published by H. Sachs and his co-workers, the authors in one infant substituted pig serum for the vaccine, with the same positive result. Although it is a significant finding that tuberculin allergy can be produced without the injection of living or dead bacilli, they state that a practical application for the prophylaxis against tuberculosis is impossible before it is definitely established whether tuberculin allergy is at all a manifestation of immunity.

The Reactivity of the Organism Toward Lipoids.—The injection of pure lipoids or of alcoholic extracts of kidneys does not produce any antibodies against the injected materials. Sachs, Klopstock and Weil demonstrate, however, that, if these substances are injected mixed with pig serum, the serum of the injected rabbit acquires all the immunologic characteristics of a syphilitic serum, and deviates complement with alcoholic extracts of kidneys and with emulsions of lipoids. The authors believe that the foreign protein activates the antigenic action of the lipoids. They assume that the protein of the spirochetes has the activating influence on the lipoids of the body which were liberated by the syphilitic process, and which, therefore, produce lipoidal antibodies demonstrable by the complement fixation test with lipoidal extracts.

Failures in the Clinical Diagnosis of Cancer in Internal Organs.—Munk and Neumann analyze fifteen cases in which the diagnosis of cancer had been missed or had been made incompletely as far as extension and localization were concerned (verified by necropsy). They conclude that the failure in most of these cases was due to the fact that a complete clinical examination was impossible owing to the debility of the patient or the shortness of observation. Arteriosclerosis or senile debility is frequently diagnosed as the cause of a cachectic condition. The greatest uncertainty of diagnosis is met with in tumors of the right epigastric region, of the right kidney, of the gallbladder, and of the pancreas.

Jahrbüch für Kinderheilkunde, Berlin

109: 1-126 (June) 1925

*Spring Predominance of Tetany. P. Karger.—p. 1.
Secretory Function Tests in Children with Vague Stomach Disturbance. F. Rohrböck.—p. 7.
*Phlorhizin Glycosuria. B. Steiner and R. Beck.—p. 21.
*Sugar in Cerebrospinal Fluid. Z. v. Bókay.—p. 31.
*The Vegetative System in Children's Diseases. Koltypin.—p. 35.
Bactericidal Action (Anthracocidal) of Infants' Serum. Keller.—p. 76.
*Color Test for Vitamin C. A. Frank.—p. 87.
*Colon Bacilli in Infants' Stomachs. Plonsker and Rosenbaum.—p. 96.
Cerebrospinal Fluid in Infants. A. Mader and S. Sänger.—p. 101.

Causes of Predominance of Tetany in the Spring.—Karger ascribes the manifestations of spasmophilia in the early spring days to the sudden exposure of the children to strong sunlight. He cites instances showing the direct connection of carpopedal spasm, for example, with an abrupt prolonged exposure to the sunshine on the first mild days of the season. The spasm subsided on rainy days. His practical conclusion is that children with rickets should be exposed to the natural or artificial sunlight with cautious gradation of doses. He urges recording of the weather and length of exposure in connection with the manifestations of spasmophilia.

Phlorhizin Glycosuria.—The glycosuria developed after injection of 2 mg. of phlorhizin in all but five of ninety children with apparently sound kidneys. With pronounced glycosuria and no change in the sugar content of the blood, the high sugar content of the fluid in an induced blister testified to a mobilization of sugar from some extrarenal action of the phlorhizin. In one case the sugar dropped in the blister fluid while it ran high in the blood.

The Sugar Content of the Cerebrospinal Fluid in Children.—Bókay discusses the import for diagnosis and prognosis of the rising or dropping of the sugar content of the lumbar puncture fluid. In meningitis, a rise after an initial drop is a favorable sign, and if the increase is progressive, the outlook is good for complete recovery. The charted findings from three children illustrate this. Tuberculous meningitis had been diagnosed in one case, and the sugar content kept falling. Then it began to rise, and recovery soon followed. It had evidently been a serous meningitis.

Function Tests of the Vegetative Nervous System in Acute Infectious Diseases in Children.—Koltypin's 150 tests on 100 children seemed to show a sympatheticotonic tendency in scarlet fever and vagotonia in measles and rubeola, but the tonus may fluctuate in the course of the disease. Changes in the vegetative system under the influence of the disease toxin have thrown light on some of the morbid phenomena. He was impressed by the action of epinephrin, pilocarpin and atropin on the leukocyte differential count.

The Bezssonoff Test for Vitamin C.—Frank found this color test rather disappointing.

Colon Bacilli in Infants' Stomachs.—Normally thriving children have no colon bacilli in the stomach unless introduced in the food.

Klinische Wochenschrift, Berlin

4: 1145-1192 (June 11) 1925

*Syphilis, Paralysis and Tabes. K. Wilmanns.—p. 1145. Conc'n.
*Blood Transfusion. P. Clairmont.—p. 1150.
*Blood Group of Mother and Fetus. Hirszfeld and Zborowski.—p. 1152.
*Action of Various Insulins. R. Priesel and R. Wagner.—p. 1157.
*Hyperfunction of the Suprarenals. F. Boenheim.—p. 1159.
Ursol Eczema. A. Buschke and H. Ollendorff.—p. 1162.
*Sodium Iodid in Ophthalmology. E. Metzger.—p. 1164.
*Double Action of Hormones. K. Karger.—p. 1165.
*Etiology of Jaundice. H. Ruge.—p. 1166.
Different Hair Pigment in Univitelline Twins. Spickernagel.—p. 1168.
*"Transplantation of Ovaries." O. P. Mansfeld.—p. 1169.
*Insulin-Resistant Diabetes. Arneth.—p. 1169.
*Isolation of Guanidins from Urine. Frank and Kühnau.—p. 1170.
Etiology of Nevus. L. Leven.—p. 1171.
*Acute Necrosis of the Pancreas. L. P. Wolf.—p. 1172.
Death from Mercurial Douche. Heubner and Staemmler.—p. 1172.
Milk in Nutrition of Patients. S. Jsaac.—p. 1172.
Accident Insurance for Children. K. Behm.—p. 1175.

Syphilis, Paralysis and Tabes.—Wilmanns concludes his critical review on the pathogenesis of metasyphilis. He believes that the usual energetic treatment of syphilis—unless it produces a true sterilization—annihilates dermotropic variants of the spirochete, but not the neurotropic strains, which temporarily leave the central nervous system and localize elsewhere. Because of this selection of the strains, the syphilis in civilized populations would remain neurotropic for some time, even if the new cases were not treated. Needless to say this would cause a terrific spread of the disease, which seems to be getting less virulent.

Blood Transfusion.—Clairmont never saw any by-effects when the blood groups had been determined correctly. He mentions the frequency of mistakes in diagnosis. The test, which may save or kill the patient, must be done by two workers independently, and be repeated before the transfusion. A control, using the patient's serum against the corpuscles of a known group, is advisable in case of doubt.

Blood Group Relations Between Mother and Fetus.—Hirszfeld and Zborowski publish their observations on blood groups in 250 mothers and children. They compared the retroplacental with the fetal blood. It seems that the permeability of the placenta for antibodies is in some relation to the blood groups of mother and fetus. With incompatible groups, the mother's blood has frequently only a low content in iso-agglutinins. This is more pronounced with the serum from the retroplacental hematoma than from the ulnar vein. Incompatibility of the blood of mother and fetus may be perhaps one of the causes of sterility. It is also possible that syphilis leads to abortion by increasing the permeability of the placenta for iso-agglutinins. They also deal with the weight and sex of the child in relation to its blood group compared with that of the mother, and they recommend compilation of statistics on these subjects.

Action of Various Insulins.—Priesel and Wagner found such differences between the action of insulin preparations on animals and patients that they recommend the clinical experiment on a diabetic child as the best standardization procedure. In many cases of alleged resistance to insulin there may have been only an individual lack of reaction to the one preparation used. A simple change of the brand used frequently produces surprising results.

Hyperfunction of the Suprarenals.—Boenheim assumed a chronic benign hyperfunction of the suprarenals in the five cases reported. General asthenia, pigmentation, anemia without increased urobilinuria, lymphocytosis and low blood pressure were present in different degrees.

Sodium Iodid in Ophthalmology.—Metzger recommends intravenous injections of sodium iodid in syphilitic and tuberculous affections of the eye, hemorrhages and exudations of the vitreous body and in detachment of the retina. He injects 5-10 c.c. of a 10 per cent. solution every two or three days; in acute cases daily. Children between 6-10 years were given half the dose.

Double Phase Action of Hormones.—Karger found that injections of various salts, such as the chlorids of sodium, calcium and magnesium, cause hyperglycemia. Therefore he explains the alleged hyperglycemia phase of action of their combination with insulin simply by their direct influence—not by a two-phase action of insulin.

Etiology of Jaundice.—Ruge concludes from his statistics on 1,331 cases of jaundice among the German marines that the arsphenamin icterus is due to the same infectious agent as the catarrhal icterus. The arsphenamin is only a predisposing cause. He recommends to take 30-50 gm. of sugar one-half hour before the arsphenamin injection. Restriction of fat in the diet, Carlsbad salts, and plenty of fluids are indicated during the whole course of treatment.

"Transplanting of the Ovaries."—Mansfeld warns against transplantation of ovaries from women suffering from cancer. The danger of a cancer graft is great, even if the gross aspect of the ovary seems to be normal.

Insulin-Resistant Diabetes.—Arneth lost two patients in coma, although the acetonuria and glycosuria had been reduced by insulin. He recommends to aid the insulin with tincture of opium, to remove the last traces of sugar, in comparatively resistant patients.

Isolation of Methyl Guanidins from Urine.—Frank and Kühnau isolated picrates of methylated guanidins from the urine of two patients with parathyroprival tetany.

Acute Necrosis of the Pancreas.—No diabetes resulted in Wolf's case, although almost 80 gm. of the pancreas was necrotic in the girl of 17. A Mikulicz tampon was applied around the pancreas, with recovery.

4: 1241-1288 (June 25) 1925

*Bloodletting. M. Bürger.—p. 1241.
*Phagocytosis and Phagocytes. O. Lubarsch.—p. 1248.
Induced Changes in Tonus. Goldstein and Riese.—p. 1250. Conc'n.
Encephalitis Lethargica and Distemper in Dogs. Lewy et al.—p. 1254.
Vegetative Neurosis in Children. W. Keller.—p. 1256.
Alternating or Direct Current for Roentgenotherapy. Rahm.—p. 1261.
Calcium in Therapeutics. A. Schlossmann.—p. 1262.
Dietetics in Toxic Goiter. R. Bálint.—p. 1263.
Alastrim. A. Plehn.—p. 1264.
Temperature and Blood Sugar. E. Geiger.—p. 1265.
Regeneration of Nerve Fibers in Transplanted Skin. Kadanoff.—p. 1266.
Convalescents' Serums. O. Moog.—p. 1267.
Training of Municipal Physicians. A. Grotjahn.—p. 1271.

The Physiology of and Indications for Bloodletting.—The first response after the withdrawal of a certain quantity of blood is to replace the loss by water and salts so as to retain a constant volume of circulating blood. The arterial tension is kept on the same level by a general constriction of the capillaries. Bürger believes that a central regulation accounts for these mechanisms. The peripheral blood shows a leukocytosis; the red blood cells are quickly regenerated, but their hemoglobin content is at first below normal. After the withdrawal of larger amounts of blood, the thrombocytes are soon increased in number. Bloodletting has a definite beneficial effect in carbon monoxid poisoning and in poisoning with all those substances which lead to the formation of methemoglobin, such as potassium chlorate, pyrogallic acid, nitrobenzol, anilin and its derivatives; in convulsions; in cerebral air embolism, and in acute circulatory failure due to pulmonary emphysema. A merely temporary relief may result in patients with uremia and acute pressure symptoms produced by an aortic aneurysm. The use of bloodletting is still very much under discussion in the following conditions: cerebral hemorrhage, essential hypertension, anemias, and in infectious diseases, such as pneumonia.

Phagocytosis and Phagocytes.—There is still much discussion as to which cells actually possess phagocytic function. Lubarsch claims that all types of cells, with the only exception of the bone cells and of ganglion cells, are capable of phagocyte action, and that phagocytosis is not a function with which only a certain type of cells is endowed (such as leukocytes), but that it is a particular functional behavior of any cell under certain conditions (growth, multiplication). He distinguishes between obligate phagocytes (blood cells and histiogenic wandering cells) and facultative phagocytes (for example, fixed connective tissue cells). As to the mechanism of phagocytosis, Lubarsch believes that there is abundant proof (for instance, by observations on tissue cultures), that it is an active process of the cell and not a "falling-into-the-cell" of the engulfed particles.

4: 1289-1336 (July 2) 1925

The Aphasias. G. Mingazzini.—p. 1289.
Asthma and Climate. W. Storm van Leeuwen.—p. 1294.
*The Cerebrospinal Fluid. A. Hauptmann.—p. 1297.
Observations of Capillaries in Man. H. Heimberger.—p. 1301.
Testis and Hypophysis. S. Nukariya.—p. 1307.
*Calcium Excretion. G. Hetényi and S. v. Nógrádi.—p. 1308.
The Colloidal Gold Reaction. H. A. Krebs.—p. 1309.
Serodiagnosis of Syphilis. R. Otto.—p. 1312.
How to Obtain Cerebrospinal Fluid in Rabbits. H. Pette.—p. 1314.
Vitamins and Growth. H. Abels.—p. 1314.
Idiomuscular Hyperirritability. V. Kollert and E. John.—p. 1315.
Gonorrhea in Gynecology. E. Vogt.—p. 1316.
Feeding of German Children. T. Hoffa.—p. 1319.

Toxic Substances in the Cerebrospinal Fluid.—Hauptmann states, as a working hypothesis, that only those substances which enter into the cerebrospinal fluid exert a toxic action upon the central nervous system. It is, therefore, important to study the permeability of the meninges to different substances and in different conditions. It is well known that the blood contains numbers of substances which never are found in the cerebrospinal fluid, and that under pathologic conditions the permeability of the meninges is greatly increased. This is the case, for example, in meningitis, in general paralysis, in tabes, and during menstruation. Hauptmann concludes that the "metasyphilitic toxin" affects the central nervous system only when it enters the fluid, and that it is unable to produce degenerative lesions in spine or brain if only contained in the blood. He shows how the further study of the permeability of the meninges may open new roads for therapeutic use.

Excretion of Calcium.—The excretion of calcium after intravenous administration is much delayed and decreased in nephritis. Hetényi and Nógrádi determined the curve of excretion in nine nephritic patients, and found that the decrease paralleled the degree of retention of the chlorids and of urea.

Medizinische Klinik, Berlin

21: 915-950 (June 19) 1925

Nonspecific Protein Therapy. H. Martius.—p. 915.
Newer Ophthalmologic Methods. H. Lauber.—p. 919.
Sclerodermia in Childhood. A. Kraus.—p. 921.
Gruels in Infant Feeding. P. Gerstl.—p. 924.
Multiple Amniotic Strangulations. I. Müller.—p. 927.
Toxic Goiter and Pregnancy. W. Jülich.—p. 928.
Prognosis of Motor Deaf-Mutism. L. Stein.—p. 930.
Technic of Intravenous Injection. Kirchbach.—p. 932.
Serodiagnosis of Syphilis. S. Levy.—p. 932.
Prophylaxis in Industrial Diseases. J. Löwy.—p. 936.
Circulatory Disturbances. E. Edens.—p. 938.

21: 951-990 (June 26) 1925

Otitis in Infants. R. Imhofer.—p. 951.
Chromodiagnosis of the Liver Function. G. Lepehne.—p. 954.
Digestibility of Food. I. Boas.—p. 956
Chronic Gastritis and Gastroscopy. R. Korbsch.—p. 959. Cont'd.
Ten Years of Radium Therapy of Skin Diseases. Möbius.—p. 967.
*A Fatal Case of Pyrogallic Acid Poisoning. R. Pewny.—p. 970.
Serodiagnosis of Tuberculosis. W. E. Hilgers.—p. 971.
Recent Research on Rabies. R. and R. Menzel.—p. 976.

Fatal Poisoning with Pyrogallic Acid.—A peasant who suffered from a universal psoriasis was treated with an ointment containing pyrogallic acid (percentage not known). Once, after covering about two thirds of his body with this ointment, he collapsed five minutes after the application, became unconscious, had violent muscular spasms, and showed cyanosis. Stimulants improved the condition only temporarily. Pewny reports that the urine contained considerable amounts of pyrogallic acid and albumin but no blood. The patient died twenty-four hours after the onset of the toxic symptoms. The postmortem findings were as follows: pulmonary edema, dilatation of the right ventricle, parenchymatous degeneration of liver and kidneys, petechial hemorrhages of the serous membranes and hemorrhages in the kidneys; the blood was not coagulated. Pewny believes that the patient had absorbed about 10 gm. of pyrogallic acid.

Münchener medizinische Wochenschrift, Munich

72: 931-972 (June 5) 1925

*Homeopathy. W. Heubner.—p. 931.
Activated Charcoal as Universal Antidote. M. A. Rakusin.—p. 933.
*Surgical Treatment of Laryngeal Tuberculosis. C. Hirsch.—p. 934.
Iodin Iontophoresis in Actinomycosis. F. Wirz.—p. 936.
Disinfection of Vagina. W. Rother.—p. 937.
*Periodic Ileus in Enteroptosis. C. Mirtl.—p. 939.
*The Pituitary and Raynaud's Disease. H. Kopf.—p. 940.
Symbiosis of Tubercle Bacillus and Man. Rheins.—p. 941.
*Breast Nursing. Müller.—p. 942.
Internal Examination by Midwife. G. Conrad.—p. 944.
*Insulin in Diabetes with Tuberculosis. H. Weskott.—p. 945.
Treatment of Fractures. F. Lange.—p. 949.
The Clinical Lecture. L. Krehl.—p. 952.
Danger to Infants from Discontinuing the Nursing Premium. Hecker. —p. 954.

Homeopathy.—Heubner objects to homeopathy only because of the dogmatic proclamation of "similia similibus" as a general rule. It is probably correct only in a few cases. Bier's three examples of efficient remedies do not prove anything for the theory. The question of doses would not prevent mutual understanding. Only the absence of scientific methods and the dogmatism are objectionable. He appreciates in homeopaths the early use of stimulation treatment, and the tendency for a limitation of the number of drugs.

Surgical Treatment of Laryngeal Tuberculosis.—Hirsch pleads in particular for treatment with the galvanocautery and surgical diathermy (electrocoagulation).

Periodic Ileus in Extreme Enteroptosis.—Mirtl's patient was a young woman with a considerable degree of enteroptosis. She had attacks of ileus every four weeks. The roentgen rays revealed a kink in the colon, and beginning of the passage of feces when the pelvis was raised. This posture assumed several times a day relieved the patient from further attacks.

The Pituitary and Raynaud's Disease.—Kopf reports therapeutic success with injections of pituitary extracts in five patients with Raynaud's disease. Preparations from other endocrine glands had no effect.

Breast Nursing.—Müller concludes from his examination of the first and last fraction of the milk in nursing that a shorter time (ten minutes) of nursing is sufficient. There were less disturbances for the mother than with twenty minutes, and the infants seemed to develop just as well.

Insulin in Diabetes and Tuberculosis.—Weskott recommends caution in insulin treatment of tuberculous diabetics. Insulin may produce a focal reaction. The beginning dose should not be over 5 units, but may be gradually increased.

72: 1015-1060 (June 19) 1925

Functional Disturbances in the Heart. K. F. Wenckebach.—p. 1015.
Insulin in Aglycosuric Metabolism (Dysoxidative Carbonuria). A. Bickel and O. Kauffmann-Cosla.—p. 1018.
Functions of Human Hair. A. Basler.—p. 1019.
*Xanthoprotein Test in Nephritic Conditions. E. Becher.—p. 1020.
Tonicity of the Heart Muscle. I. Schwarzmann.—p. 1021.
Antigen and Proteins in Echinococcal Cysts. J. van der Hoeden.—p. 1022.
Acute Lupus Erythematodes. H. W. Siemens.—p. 1023.
Lupus Erythematodes with Erythema Centrifugum. W. Richter.—p. 1026.
Diathermy in Gallbladder Disease. R. Hirsch.—p. 1029.
The Thyroid and Immunity. Weyrauch.—p. 1029.
*Retinitis in Nephritis. E. Spir.—p. 1030.
Gangrene of Both Legs Following Thrombosis. K. Lehmke.—p. 1032.
Arteriosclerotic Spinal Cord Hemorrhage. G. Hubert.—p. 1033.
Pulmonary Actinomycosis. Schlapper.—p. 1034.
Arsenic Poisoning. Jaeger.—p. 1035.
A New Catheter. Mähler.—p. 1036.
Treatment of Fractures. F. Lange.—p. 1036. Cont'n.

Xanthoprotein Test in Acute Nephritis and in Granular Atrophy.—The end products of nitrogen metabolism are not subject to an equal retention in renal insufficiency. Becher has found that the amount of substances in the blood, giving the xanthoprotein test, varies significantly with the different conditions causing renal retention. The substances which are chiefly responsible for the test are: phenol, cresol and aromatic oxyacids. In acute nephritis, although there may be a considerable increase in urea and uric acid, the xanthoprotein bodies are not at all or very little increased; in granular atrophy of the kidneys they are always much increased, even in an early stage. High values are always found in true uremia. Becher considers the test of great significance for the differential diagnosis of acute nephritis and granular atrophy.

Retinitis in Nephritis.—The discussion concerning the relation of retinitis to nephritis is by no means closed. Spir correlated the frequency of retinitis to different other outstanding symptoms in patients with chronic nephritis, and found no parallelism between this retinal affection and the amount of the nonprotein nitrogen in the blood, the amount of albumin in the urine, retention of water, edemas and a higher freezing point in the blood. His statistics of 235 patients with chronic nephritis with fifty-four cases of retinitis show, however, that with higher blood pressure the frequency of retinitis increases. But Spir concludes that the arterial hypertension is not likely to be the exclusive causal factor, because retinitis is found much less frequently in essential hypertension than in renal hypertension.

72: 1061-1100 (June 26) 1925

Action of Insulin. E. F. Müller et al.—p. 1061. Cont'd.
*Metabolism in Chronic Kidney Diseases. W. Nonnenbruch.—p. 1064.
Syphilitic Processes in the Lower Spine. K. Blum.—p. 1066.
*Paravertebral Anesthesia. F. Gerlach.—p. 1067.
Amino-Acids in the Blood in Renal Insufficiency. E. Becher and E. Herrmann.—p. 1069.
Benzochol Test. J. Mouriz Riesgo.—p. 1070.
Viscosity of Synovial Fluid. J. Schneider.—p. 1071.
Intensity of Therapeutic Light. Micklinghoff-Malten.—p. 1072.
Constitutional Indices in School Children. T. Fürst.—p. 1073.
Epinephrin in Circulatory Weakness. Kothe.—p. 1076.
What is Pathologic Physiology? W. Stoeltzner.—p. 1076.
A Hygiene Exposition. A. Fischer.—p. 1079.

Basal and Protein Metabolism in Chronic Nephritis.—In patients with chronic diffuse glomerular nephritis and primary granular atrophy, the increased basal metabolic rate is in no way related to the amount of the nonprotein nitrogen. Sometimes it is possible to reduce the nonprotein nitrogen to normal by a nitrogen-poor diet, and in this case the basal metabolism returns to normal too. If the diet does not influence the nonprotein nitrogen, the metabolic rate remains high also, and at the same time a high output of sulphates in the urine is found. This may suggest the possibility of a toxic destruction of protein. Nonnenbruch believes, however, that this process cannot account for the high basal metabolism.

Paravertebral Anesthesia in Diagnosis and Therapeutics.—Gerlach has applied the method of Läwen to more than 100 patients, and believes that the selective injection of different nervous segments affords a ready means for the exact localization of pain referable to internal organs. The stomach and the upper part of the duodenum both receive their innervation from segments D 6 and D 7: they can therefore not be differentiated by this method. The gallbladder and the bile ducts are supplied by D 9 to D 11, the kidneys by D 12 and L 1; the ureters by L 1 to L 4. Differentiation between the appendix and the parametrium is not possible by this method. Gerlach found that paravertebral anesthesia has not infrequently a beneficial therapeutic effect on painful conditions due to spasms in internal organs.

Prophylaktitcheskaia Medicina, Charkoff

4: 1-180 (April) 1925. Partial Index

Immunization with Diphtheria Toxin and Antitoxin. S. Korshun et al.—p. 7.
*The Scarlet Fever Question. S. Zlatogoroff.—p. 13.
Examination of Mosquitoes for Malaria Plasmodium. S. Shachoff.—p. 25.

Research on Scarlet Fever.—Zlatogoroff asserts that Dick's experiments with culture filtrates do not testify to the absence of a filtrable virus in scarlet fever. It may be associated with the streptococcus, and thus its activity may be enhanced by the streptococcus toxins. By inoculating rabbits and monkeys with the filtrates, he induced in them an affection similar to scarlet fever. Successive inoculation of animals gave origin to a passage virus. Research on animals with the blood of scarlet fever patients showed positively, he says, the existence of a virus, also confirmed by the Italian authors (di Cristina, Caronia and Sindoni) who cultivated a microorganism from the blood of patients. The hemolytic streptococcus of scarlet fever is found in different diseases, in healthy persons and in water; its reaction to sugar, as well as the antigen and toxin-producing properties do not differ from those of the ordinary streptococcus. His investigations failed to prove any connection between the stages of the disease and the skin reaction. He was unable likewise to confirm the relation of the positive reactions with the receptivity at different ages (Zingher). The extinction phenomenon does not indicate the presence of a specific scarlet fever antitoxin, since not all convalescents' serums induce a positive reaction in scarlet fever patients. Also the active serums provoke a positive reaction only in from 50 to 80 per cent. of the cases. Evidently the phenomenon shows the response of the organism to the streptococcus invasion, in which the virus may not be involved. No relation exists between the phenomenon and the Dick test. Therefore the extinction phenomenon does not indicate the specificity of the toxin. He adds that the work of the Americans is important because it has demonstrated the rôle of the streptococcus as a toxic micro-organism.

Acta Medica Scandinavica, Stockholm

Supplement 12: 1-145, 1925

*Syphilis of the Fetus. G. Ekehorn.—p. 1.

Syphilis Involving the Fetus.—Ekehorn gives here a critical study of syphilitic endometritis of the secundines, and of the presence, nature, functions and development of the antibody-producing tissues of the fetal organism. His work is in English, and is a continuation of an earlier article. Fetal syphilis is always graver than in adults.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 85, No. 8 Chicago, Illinois August 22, 1925

EDUCATION IN ROENTGENOLOGY *

PRESTON M. HICKEY, M.D.
ANN ARBOR, MICH.

Advancement in roentgenology as a branch of medical science devoted to the diagnosis and treatment of disease depends, first of all, on the fitness of the roentgenologist adequately to handle the problems presented to him, and, secondly, on the appreciation of the services which roentgenology can offer to the general medical profession and also to the laity. Its progress therefore depends on the training of the roentgenologist and the education of the medical profession. The foundation for this must of necessity be laid during the formative period of the medical student. It is a problem that primarily concerns the medical college during the period when the student is beginning his study of medicine, but it is also intimately concerned with the premedical courses. Professional societies, both local and national, fulfil a very useful place in their presentation of many of the newer developments in this science, but they cannot replace the fundamental work that should be done in the medical colleges.

Let us consider whether the medical colleges of this country are adequately performing the task that falls on them. During the last few months, I have taken occasion to review the catalogues of all the medical colleges in this country, with especial reference to their courses in roentgenology. The information gained as to the courses given was so confusing that an attempt at classification would be impossible. The courses were as varied as the binding and pages of the catalogues. To say that lack of uniformity prevailed in the manner in which roentgenology is taught in this country would be putting it very mildly. In only a small percentage of the schools was there a separate department of roentgenology with a professorial head. To prove these statements, I will quote from some of the various catalogues.

In one prominent Southern university, the teaching is done by the assistant professor of medicine; and there is no mention of the amount of time devoted by the department of medicine to roentgenology. In another prominent university, we find that the professor of roentgenology is also the professor of dermatology and clinical therapeutics. The catalogue does not give the number of hours set aside for instruction, and the course in roentgenology is scheduled under the head of "Lectures and Demonstration in Electro-Therapeutics, Including X-Ray." In a well known Eastern university the department of roentgenology is represented by an instructor in radiography and genito-urinary diseases; the catalogue does not even give the year in which the subject is presented. In a well known university of the Southeast we find that the instructor in medicine gives the course in roentgenology; the number of hours required is not given. In one prominent university of the Middle West, the college catalogue gives no department of roentgenology, nor any mention of work in this subject. In another college of the Middle West, roentgenology is represented by an instructor in surgery. In a Southern college, a professor of physiotherapy and roentgen ray is mentioned, who gives a course in hydrotherapy, baths, light, heat, massage and electricity, including the roentgen ray. In a prominent college in New York State, no staff is listed under the head of roentgenology, but a course is given by the department of surgery, though the hours are not listed. In one Eastern University hospital there is a roentgenologist of international reputation, but the college catalogue only lists a roentgenology conference once a week for ten weeks, and this is an addendum to the surgical staff. In another university, we find under the head of therapeutics that there is one lecture given on the roentgen ray, one on radium, one on ultraviolet light, and one on electrotherapeutics. I might mention that several of the prominent colleges conceal roentgenology under the wing of the department of orthopedic surgery. In another university of wide reputation, the department of roentgenology is represented by an associate professor, although this associate professor enjoys as high a professional reputation and has had as long experience in teaching as many of his colleagues who hold the rank of professor.

I have given enough quotations to call attention to the fact that a most unfortunate situation exists at present in the teaching of roentgenology in this country. This is probably due to the fact that roentgenology is a new specialty and that medical college faculties are notoriously slow in meeting the requirements of changed conditions. I have been indulging in some destructive criticism; let us consider for a few moments the required course that should be given.

Years ago, when the use of the roentgen ray was confined to the demonstration of bullets and fractures, it was quite proper to class roentgenology as a subdepartment of surgery. However, the gradual growth of the applications of the roentgen ray to practically every department of medicine and surgery has produced a change which makes it advisable that roentgenology should be recognized as a separate department in every medical school. It is self-evident that the demonstration of the services of roentgenology to internal medicine, otology, neurology, obstetrics, etc., could not be adequately presented by any one whose work was confined to surgery. It seems almost self-evident that every

---

* Chairman's address, read before the meeting on Radiology in the Section on Miscellaneous Topics at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

medical college that is keeping abreast of the times in matters of medical education should have a separate department for roentgenology and roentgen-ray therapy. It follows, too, that in such a separate department the teaching should be under the direct control of a roentgenologist, who should be given the title which his experience and fitness would warrant. If his experience in his particular line of work measures up correspondingly with the experience of the head of the surgical department, who is given professorial rank, it follows that the roentgenologist should be given professorial rank. In accord with the newer ideas of clinic presentation, the roentgenologist should be afforded his proper place in clinical conferences along with the surgeon, the internist and the other specialists. Few sights are more pitiful than that of some internist uninformed on the basic principles of roentgenology attempting to demonstrate roentgen-ray findings in a gastro-intestinal case.

Following the proper organization of a department of roentgenology, this subject must receive its appropriate presentation to the medical student. It is not the claim of those most interested in roentgenology that an undue proportion of hours should be assigned to this more special field of knowledge. However, since the student is constantly confronted with films made in all the important clinical fields of medicine, it follows that the course should be comprehensive. The fundamental principles of the science should be thoroughly taught, but the technic of the application is more properly left for postgraduate courses. The general principles of plate interpretation should be thoroughly taught, so that students will think in records of density and tissue composition rather than in the blacks and whites of pictures.

I would emphasize that the teaching of roentgenology is primarily a medical and surgical subject and that all teaching positions in the department of roentgenology should be held only by those who possess a medical diploma. This statement seems so self-evident that I would hesitate to emphasize it were it not that college authorities are at times oblivious of this fact.

The ideal presentation of the subject of roentgenology would be to familiarize the student in the preclinical courses with the use of the roentgen ray in the study of normal anatomy, normal physiology and gross pathology. The student should approach his clinical work with a fair understanding of the normal roentgen-ray appearance of the body structures, and the body functions. It therefore follows that the time-honored lecture course given during the senior year, based principally on the lecturer's collection of more or less interesting lantern slides, is quite passé. The aid which the roentgen ray can afford in the study and diagnosis of the clinical cases assigned to the student during his senior year should be thoroughly taught in sections limited in number so that each student can see satisfactorily the films demonstrated. On the other hand, the roentgenologist entrusted with this teaching should be most precise in the recognition of the limitations of roentgenology, so that the student on his graduation will have sane ideas on the use and limitations of the roentgen ray.

Now that many states are requiring a full year's residence as a rotating intern in a recognized hospital before a state license will be granted, it follows that the rotation service in a Class A hospital should have the intern spend a proper amount of time in the roentgen-ray department. Here his work should be laid out carefully for him by the chief, as his comparatively short stay in the department requires that his training be somewhat of the intensive type. Here he will learn to correlate the clinical side with the roentgen-ray findings.

It is well recognized that the progress of roentgenology has been hindered by the work of comparatively untrained men who have taken up this specialty. One remedy for this is not the establishment of more roentgen-ray postgraduate schools, but the appointment in Class A hospitals of a resident roentgenologist. This resident roentgenologist will be on duty in the hospital, and, acting under the direction of the nonresident chief, will daily perform the technical work and the diagnostic interpretation which will ultimately classify him as a trained specialist.

SUMMARY

1. Roentgenology as a modern specialty is inadequately taught in a large percentage of the medical colleges in the United States.
2. Roentgenology should be recognized as a separate department in all standard medical schools and should have a director of professorial rank.
3. The teaching of roentgenology in our medical colleges should be carefully correlated with the other branches, so that the students would receive proportionate and adequate instruction in this specialty.
4. The Class A hospital should assist in the teaching of roentgenology by affording its interns the opportunity to become acquainted with the every day applications of its principles.
5. The training of the specialist in roentgenology should be one of the functions of a Class A hospital.

1905 Cambridge Road.

TEACHING OF UROLOGY TO INTERNS *

WILLIAM C. QUINBY, M.D.
BOSTON

Methods of instruction of the recent graduate in the art of surgery and of the surgical specialties are important, for the problems concerning them affect us all to a greater or less degree.

As any special field develops through intensive study and work at the hands of many men, the amount of detailed knowledge in that field is continually increased till a point is reached at which the available knowledge, especially as it concerns diagnostic and therapeutic measures, is of a magnitude so great as to demand a period of months, if not years, of extensive study by him who would become master of it. In such a state is the field of urology today.

It is manifestly impossible to acquire proficiency in this branch of surgery during those relatively few months comprised in the usual hospital internship. It is very important, however, that a well balanced surgical instruction should familiarize the intern with the outstanding features of our present knowledge concerning diseases of the urinary apparatus, so that on graduation he may see all types of disease in proper perspective. Should he then wish to devote his time intensively to this type of surgery, he will renew his hospital appointment as assistant resident, and later progress to the post of full resident.

---

* Read before the Section on Urology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

Our special problem of instruction is thus reduced to the question, How much is it necessary for the man well trained in general surgery to know concerning the surgery of the urinary organs? And as a subsidiary question, How shall he acquire at least the beginnings of this knowledge during his internship?

As concerns the method by which detailed information may be imparted to the intern, a considerable variation must obtain because of the varying organization of our hospitals. In some, the intern is committed to a rotating service, spending a specified amount of time in each special field of surgery. In others, his progress is marked only by successive increase in the degree of responsibility laid on his shoulders, the types of patients under his charge remaining always diverse.

Since my own work at the Brigham Hospital is organized on the latter plan, it is of this arrangement only that I will speak. No differentiation is made of the hospital beds except that they are about equally divided between medical and surgical patients. The population of a ward will therefore at any time be fairly representative of the more serious forms of disease as seen outside the hospital. The intern's service is divided into four periods of four months each: The first term is devoted to clinical laboratory work and the operating room as second assistant; the second term gives him charge of a small surgical ward under the supervision of an assistant resident; the third finds him giving his whole time to the patients in the outdoor department, which in our hospital is open all day, while during his senior term he controls a larger and more active surgical ward. Here we see no provision for intensive work by the intern in urinary diseases over a specified time. He is, however, having to deal with at least a few patients of this type during his entire hospital career.

In the first term he is responsible for such clinical examinations as urinalyses, renal function tests, and the collection of material for the various bacteriologic and serologic examinations. In the second term the intern becomes assistant in the cystoscopic room during half his time, under the immediate direction of the resident in urology. In half of his third term he assumes charge of the urologic department in the ambulatory clinic, in which venerology and urology are about equally divided, and in which, under guidance, simple cystoscopies are done; while in the final period he returns to the indoor care of such urologic patients as may, among others, be assigned to his ward.

Once each week, formal ward rounds are held by the head of the service, at which each intern is expected to be on hand for the discussion of all cases under his charge. In this exercise, fourth year medical students, acting as clinical clerks, take a prominent part, and the patient is discussed from all angles, together with data from pyelograms, etc.

So much for the opportunities for instruction of the intern in which precept and example, instruction by both resident and attending surgeon, and all those elements which go to make up the complexion, or, better, the personality of the hospital, play their part. You will ask what specific points are to be emphasized during such instruction. The scope of this paper will permit the consideration of only a few of them, such as the fact that a careful detailed history and physical examination of the whole patient is the first necessity for a proper diagnosis. This includes a rectal examination in men; a rectal and pelvic examination in women. Then there follows urinalysis and blood count. Renal function as shown by the phenolsulphonephthalein test comes next, the intern's attention having been called to the possible sources of error. Then a roentgen-ray film of the kidneys, ureters and bladder is required in all cases except those presenting obvious pathologic conditions confined to the external genitalia. Similar procedure in various cases will thus demonstrate to the intern that many routine measures should precede that of cystoscopy, which should be performed only at an advanced stage in our investigation of the patient, and after its need has been demonstrated. Constant stress and instruction are given in the precautions necessary for instrumentation of the male urethra, and until dexterity has been acquired, the intern should be forbidden the use of any instrument more formidable than the soft rubber catheter, except under the personal guidance of a senior man.

Such fundamental diagnostic measures the intern will learn during the early part of his hospital career. In the venereal clinic the proper conduct of acute and chronic gonorrhea is stressed. Here also he will have further opportunity, under guidance, to acquire a beginning familiarity with the observation cystoscope. In the ward he will learn the constant watchful care needed by the man bearing an indwelling catheter, the great value of forcing fluid and the favorable influence of both on the condition of the prostatic patient with overburdened kidneys. The great importance of pyuria, and especially of hematuria, as symptoms, will become evident in many cases. The "silence" of renal tuberculosis, and the significance of a urine, acid and possibly containing some pus, but sterile on the usual culture mediums, become clear. Familiarity with different pyelographic and cystographic roentgen-ray films will also be acquired, and the need for urologic investigation of all patients presenting obscure abdominal symptoms of any sort will stand forth.

It will be noted that I have not mentioned any special training of our intern in operative work; this is for the reason that he will have no opportunity for such, except in case of relatively minor procedures on the male external genitalia or some such routine measure as a simple suprapubic cystotomy. For these his general operative instruction will suffice. Should he aspire to major urologic surgery he must serve a much longer apprenticeship.

In effect, therefore, we try to give our intern a point of view. We try to show him how diagnostic evidence is obtained, and what deductions are proper from each form of evidence. The life history of diseases of the urinary organs he will learn at first hand; what should be done for such patients, and under proper treatment, what will be the prognosis, will become clear. He will in no sense of the term be on graduation a urologist; but, granted a beneficent providence has endowed him with an average brain, he will at least be such as the wise Thomas Fuller in the seventeenth century described as one who "trusteth not the single witness of the water if better testimony can be had, for reasons drawn from the urine alone are often as brittle as the urinal."

Peter Bent Brigham Hospital.

ABSTRACT OF DISCUSSION

DR. ROBERT H. HERBST, Chicago: In discussing Dr. Quinby's paper on the instruction of interns in urology, we must differentiate between the intern or fifth year student, and the resident or postgraduate student. The object of the latter is to concentrate in urology with a view to fit himself to practice this branch of surgery in a more or less special manner. I believe that Dr. Quinby's paper has to do with the teaching of the intern only. How much we can teach these students depends on the type of service they are following, whether single or rotation. If the former and the entire year is devoted to urology, I think he can learn a great deal. If, however, he is taking a rotation service and makes a change in service every four or six weeks, one cannot hope to teach him more than the simple principles, such as catheterization. The one year plan with single service is better from the standpoint of the patient and the attending man, but gives the student practical experience in only one phase of medicine. The same plan with rotation service gives him only a "look in" on each subject, and he is of little value to the attending man and often useless in the care of the patient. The ideal plan is a two year service—the first year being devoted to medicine in which the student may rotate in the sub-branches of general medicine, gastro-enterology, neurology, etc., and a second year devoted to surgery in which he rotates in general surgery and the surgical specialties, such as urology and orthopedics. With this plan the student can remain in a service for at least three months, learn something worth while in each, and at the same time be of some value to the attending man and the patient. It seems to me that if we could take out a year in the grade school or high school, and add a year of hospital work, making the internship two years, we could succeed in giving these students something of practical value. At Rush Medical College and the Presbyterian Hospital we plan to equip the student for his intern year by allowing him to serve in the hospital as a clinical clerk during his fourth year. By so doing, he obtains experience at the bedside, in history writing and in the examination of patients, and has an opportunity of seeing the therapy carried out, whether it be medical or surgical. In this way the student enters his intern service with some practical knowledge and is better prepared to carry on the work of the fifth year.

Dr. A. L. Chute, Boston: It seems to me very difficult, particularly in the smaller hospitals, in which we have men for only a few months at a time, to get the interns to have any great enthusiasm or to take any deep interest in urinary work or do much for the patients; it is really too advanced work for most interns. I have no specific plan in mind by which we can obviate this. Dr. Quinby properly considered the subject largely from the point of view of the student, while I will admit that I am interested not only in what we give the intern, but what in turn he is going to give us. At present I get very little help, for the men change often, and by the time they get useful they rotate to another service.

Dr. B. A. Thomas, Philadelphia: The difference between the man taking general hospital service and the man who wants to be a urologist is great. The chief difficulty is to arouse any interest in the general hospital intern and get him to take any interest at all in this specialty of the "peacocks" referred to by Dr. Haggard. It seems to me that a great deal will be accomplished when the millennium arrives and the urologist can have an organization of his own in hospital services for the care of patients, where not only the nurses and orderlies, but the interns will have nothing else to do to distract their attention. They certainly will get a much better training, and, I think, many will be stimulated to take up urology as a specialty who now fall by the wayside. So far as the chiefs of service are concerned, they would get much better and more satisfactory work from such residents in the service. This would be a real step forward for urology generally. This plan is in force in some hospitals already, but in the vast majority there is not a separate ward devoted to these patients, and that is one of the real problems and difficulties encountered.

Dr. I. L. Ohlman, Pittsburgh: In Pennsylvania, the bureau of medical education and licensure takes the stand that in all free and part pay cases it is the province and right of the intern to be first assistant at the operating table. The bureau insists on this and, since we are dependent on the intern, this practice is forced on us in all hospitals, except those which can afford to pay licensed physicians. I might explain that the medical student takes his fifth year of medical education in such hospitals as are approved by the bureau of medical education and licensure. It is only after the completion of his fifth year in an approved hospital that he is permitted to take the examination for license to practice in our state.

Dr. W. C. Quinby, Boston: It is our duty to influence wherever we can such drastic legislation as will dictate what the exact method may be by which an applicant for licensure may acquire his knowledge. An examining board has the right only, in my humble opinion, to ask of the candidate, "Do you know enough of medicine and surgery to be a safe practitioner?" It exceeds its rights if it attempts to dictate how such knowledge shall be obtained. As to those states that require a rotating service in hospital, I am sure that this is a mistake, and can be easily circumvented by men taking the federal examination. Dr. Chute asks what we are going to get out of the intern. I am more disposed to ask, "What are we going to get into him?" I never try to get anything out of him. If I can keep him from getting me into trouble, I feel that I am fortunate. In our hospital the intern is but one step in advance of the clinical clerk. They are there distinctly as students, to be instructed, and I never expect to get anything out of them. The intelligent aid comes from the resident staff, not the intern staff. I have not had much experience with urologic patients in a separate ward. Dr. Thomas differs from me; but my impression is that, so far as the student of general surgery is concerned, the separate ward is a mistake. It is apt to give him a warped point of view. I grant you will get more out of the intern, but the intern himself will not learn as much as he will out of being in charge of a ward where in one bed the patient has a hernia, in another a fibroid of the uterus, in another a tumor of the brain or in another a kidney neoplasm. He will see this variety in those seeking his aid after he leaves the hospital so that he had better see it in the hospital. I am much surprised by Dr. Ohlman's statement concerning the first assistantship at operation. I should greatly dislike being restricted in such way in the handling of the men under my tutelage in the hospital. I would suggest that the attitude in Pennsylvania might change, if a resident staff were added to the intern staff.

INDUSTRIAL HEALTH UNDER NON-MEDICAL SUPERVISION *

EMERY R. HAYHURST, M.D., Ph.D.
Professor of Hygiene, Ohio State University; Consultant, Industrial Hygiene, State Department of Health
COLUMBUS, OHIO

The time at my disposal forces me to be somewhat brief and dogmatic. Dr. William H. Park [1] commented last year before the Conference of Physicians in Industry on the changing types of diseases from the strictly communicable diseases, pronounced in childhood and young adult life, to the diseases of industry and civilization. My discussion is limited to the industrial aspects, and then in only a small way.

THE STATUS QUO

I think we can all agree pretty well with Selby [2] that the recent war made industrial hygiene prominent in this country, and that now *the physician in well organized plants* has come into his own and is governing his bailiwick himself instead of his employer, or the feeble attempts of official departments of government. But with this exception, in practically all states, medical inspection of the hygiene of working conditions is rare indeed, so that industrial hygiene is today hardly more than a legal function of state labor departments with limited personnel devoting practically all its time to accident prevention and having no training in hygiene and the fundamentals of health conservation.[3] As a consequence, circumspection shows that traditions rule. Health practically takes care of itself. Disastrous forms of ventilation, overheating and illumination prevail. Poisons are tolerated to the point at which workers sicken at their benches except that, in some states, compensation tends to check them. Ignorance abounds, as shown by the methods employees and employers use to circumvent certain hazards. Exploitation abounds through the activity of commercial agencies as, for example, in regard to first-aid remedies and methods, disinfectants and air filters, whirlwind ventilation schemes (in place of local exhausts) which secondarily compel dangerous overheating, and, here and there, lay persons, cultists and sometimes nurses acting as physicians.

---

* Read before the Section on Preventive and Industrial Medicine and Public Health at the *Seventy-Sixth* Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Park, W. H.: The American Public Health Association and Industrial Medicine, Nat'l Ind. Conf. Bd., Spec. Rep. **30**: 8 (April 4) 1924.

[2] Selby, C. D.: The Promotion of Industrial Health, Am. J. Pub. Health **15**: 209 (March) 1925.

With all due respect to what a few industrial physicians are doing and have accomplished, all full credit to them, rarely do physical examinations exist or are inquiries made into the causes of sickness. Hoover's waste campaign in industry goes unappreciated, as respects a large part of the industrial health question, in the vast majority of plants. Only a few states require compensation for occupational diseases, and here the limitations are so severe that it is very inadequate. As pointed out by many, the lack of efficiency while at work in those in poor physical condition is probably a greater factor than actual loss of time. The current Philadelphia industrial health survey[4] shows, without question, that high grade physical defects are much more frequent in factory than in office or field workers.

Tuberculosis rates transcend, in connection with occupation, practically any other relationships known in civilized communities for this disease.

As a community, state and national affair let me cite Dublin's[5] statistical deduction that there is a marked diminution in the longevity of industrial workers in the country—a difference of about eight years in the average expectation of life when compared to those engaged in agricultural, commercial and professional pursuits. Of this, one year on the average is due to the extra hazard from accident, and two years to the increased incidence of tuberculosis; pneumonia is twice as high; and degenerative diseases, such as cerebral hemorrhage, chronic interstitial nephritis and organic heart disease, show rates two or three times as high as in the nonindustrial groups. Dublin quotes Wade Wright to the effect that 5,000 out of a total of 32,000 patients in the Massachusetts General Hospital were referred to the industrial clinic, and approximately 2,000 of them were ultimately found to be suffering from occupational disorders of one kind or another. About 6 per cent. of those who came to the outpatient service appeared to be in need of specialized treatment or the advice of an industrial physician. In a physical examination survey, chiefly among wage-earners' families, the New York Academy of Medicine[6] found that 72.7 per cent. of 958 examined needed definite medical treatment. Says Dublin, "If cases [of occupational disease] are discovered it is only because the worker happens to fall into the hands of an unusually enlightened physician, or because his condition is extreme."

It is plain to be seen that there is practically no public, that is, official supervision over the health of workers in the smaller plants of the country (employing less than 500 persons), which constitute, according to McCord,[7] 99 per cent. of all plants and employ 60.4 per cent. of the 9 million factory workers in the country. McCord concludes that less than 1 per cent. of the sizable smaller plants maintain adequate medical departments. The Philadelphia survey[8] discovered approximately 6,500 industrial and commercial firms in that city, of which more than 4,500 employ only from two to twenty-five persons. "These were excluded from further study as not being likely to have any organized medical service on account of their small size. . . . Of [1,691] small plants in Philadelphia having from 25 to 300 employees [representing approximately one fourth of the industrial population], 680 reports show 334, or 49 per cent., of the plants reporting have medical service. This is complete in four plants, incomplete in thirty and of emergency character in 300. More than half, 346, report no medical service of any character."[9] A direct inquiry[4] showed that of 507 health examinations in ten selected plants employing from twenty-five to 200 persons where no medical service obtained—permanent workers, for the most part—92 per cent. had not visited a physician within a year. Seven per cent. said they had never consulted one. Several published reports elsewhere have also shown that cultists are usually first consulted for minor and even major afflictions among the working groups.

From the data presented above it will be seen that the government is derelict in duty in regard to the health conservation of workers. It leaves large plants to take care of themselves and pays no attention to small ones. No machinery exists to extend the experience developed in larger plants, many of which have reduced the customary average of from eight to ten days' loss of time annually per person on account of disability to perhaps half that figure.[10]

In summing up the status quo, it appears to me that while the mill keeps on grinding, voluntary agencies keep extending their appeals with too much emphasis on aid instead of prevention. Likewise, the government, from the smallest incorporated place up to that of state and national magnitude, is always much more willing to spend public funds on compensation and accommodation than to appropriate for prevention. I am glad to say that, at last, the electorate in Ohio has definitely voiced its opinion on this matter and permitted the state department of industrial relations to set aside 1 per cent. of the premiums collected for compensation purposes for the prevention of accidents and occupational diseases. Heretofore, as exists in almost all states, a meager direct appropriation has been made for factory and mine inspection purposes, usually without any relationship to the magnitude of the disability problem.

---

[3] Hayhurst, E. R.: Values in the Maintenance of Health of the Worker, Am. J. Pub. Health **15**: 116 (Feb.) 1925; The Rôle of the State in Industrial Hygiene, Am. J. Pub. Health, to be published.

[4] Philadelphia Health Council and Tuberculosis Committee: Five Hundred Health Examinations of *Industrial Workers*, Memorandum [sic] **2**: 1 (Aug.) 1924.

[5] Dublin, L. I.: Health of the Workers, *Monthly Labor Rev.* **20**: 8 (Jan.) 1925.

[6] Emerson, Haven: Periodic Health Examinations of Apparently Healthy Persons, J. A. M. A. **80**: 1376 (May 12) 1923.

[7] McCord, C. P.: Industrial Health Promotion in Small Plants, Am. J. Pub. Health **15**: 299 (April) 1925.

[8] Philadelphia Health Council and Tuberculosis Committee: Medical Service in Industrial Plants in Philadelphia, Memorandum [sic] **3**: 12 (Feb.) 1925.

[9] The bracketed inclusions are taken from other parts of the same report.

[10] Quinby, R. S.: A Study of Industrial Absenteeism, Monthly Labor Rev. **13**: 1 (Oct.) 1921; Nation's Health **3**: 572 (Oct.) 1921.

set us right on the question of causes of sickness in industry. There is a strong tendency to overestimate occupational disease and to underestimate the influence of home environment. We attach too much importance relatively to the eight hours the man spends in the mill and not enough to his personal habits and to the sixteen hours he spends outside.

Dr. H. F. Smyth, Philadelphia: I am chairman of the Industrial Hygiene Section of the American Public Health Association. I tried to arrange for a symposium at our meeting in St. Louis to discuss this very question of the relation of public health workers to industrial matters. I am trying to get this discussed from the point of view of the industrial physician himself and from that of the city health officer. When I looked around to get the city health officer who was directly interested in industrial hygiene, I was informed by one who is considered among our progressive city officials of the medium sized cities that I could not find one because there "wasn't any such animal." I have found since that he was somewhat mistaken, although they are rather rare. I have now succeeded in getting one city health official to take part in our discussion and hope to get one or two more, but it was rather a hard problem to find a city health official to feel that it was his problem at all. That is the object of Dr. Hayhurst's paper, to stimulate the city health officer to feel that he has a definite part in this problem and that while a small percentage of plants and a small percentage of industrial workers are well taken care of by the industrial physician, the majority of industrial workers are not getting this service and should have it. The state and city health officers should both take their part; they should not do it all; the industrial physician should be called in. It is the old story of "passing the buck," and in the study of industrial hazards I have met the same idea in industry itself in the study of the tanning industry in my own state. Visiting the sole-leather tanneries while investigating the anthrax problem, I would be told: "Oh! you won't find anthrax here, go to Philadelphia where they tan goat skins. Don't come to us, we never have any." When I investigated the goat skin tanneries, the man who handles goat skins said, "Don't bother with me, it isn't in goat skins." Now it may look as though Dr. Hayhurst is trying to make the city health official the goat, but he is simply trying to get at the truth.

Dr. E. R. Hayhurst, Columbus, Ohio: I am not a statistician; none of the figures I quoted did I collect myself. I am quoting outstanding authorities and journals in which they were published. The question of whether industry is a battlefield or not is, I think, a disputable one. In Ohio we killed approximately 1,000 men last year in our industries. We had 245,000 reports of accidents alone. That does not look very much different from the war record our country made the time our troops were over there—from one state alone. Dr. Sappington showed that there are twenty cases of illness to one of accidents, and seven days' lost time, as the annual average per person, on account of illness. This gives some idea as to just what industry means to the worker in America today. I tried to make it plain that I was not overstating environment or "exopathic" conditions, as Professor Barker prefers to call them. We are today compensating all sorts and kinds of accidents in Ohio because the worker put on the job is not previously examined as to his fitness for it. Thus, many accidents might be prevented if we knew the worker better; but his environment as to accidents is a matter of continual supervision. Industrial diseases might likewise be largely prevented were examination made of workers, but the healthfulness of job requirements are passed over, not investigated and not correlated with accepted standards. The chief point I wish to stress is that the government is derelict in matters of industrial health supervision, local and the state governments, especially, since it pays no attention to the majority of workers because they are in small establishments and because accident prevention and investigation take practically all of the inspectors' time. Health does not stop at 8 o'clock in the morning and begin again at 4 or 5 o'clock in the afternoon for 42,000,000 workers in America, of whom some 15,000,000 are in factories, mines and similar places.

OCULISTS OR OPTOMETRISTS—WHICH?*

JAMES M. PATTON, M.D.

OMAHA

I think we can state with perfect fairness that the majority of optometrists are in the main making an honest effort, through preliminary training and the establishment of definite standards of ethics and proficiency, to render service to the public. However, during the last five or six years there has been a growing activity on the part of certain optometrists, some of whom hold official positions in state optometric organizations, which can be interpreted only as an attempt to restrict the rights of the regularly licensed oculist so far as the fitting and prescribing of glasses is concerned, even looking forward to the time when all oculists will be compelled by law to pass an examination before the board of optometry of the state in which they may be located.

As several of these incidents have recently come to my notice, I wrote the attorney general of each of our states, asking for copies of existing laws regulating optometry or of bills pending in their several legislative bodies. Courteous replies were received from practically all these gentlemen, either enclosing the requested information, stating that they were referring my inquiry to other departments which would send it, or giving definite information as to where it could be secured. A rather careful examination of the statutes and proposed bills has failed to show anything definitely directed against the oculist. In most cases the educational standards for licensure, code of ethics, and penalties for nonobservance of these were clearly stated. There were certain sections of some of the statutes and bills, to be discussed later, which may bear more or less directly on the problem of the oculist. Most of the statutes define optometry as "the examination of the human eye without the use of drugs, medicines or surgery, etc.," or words to that effect, and as a rule exempt "persons authorized under the laws of the state to practice medicine or surgery." At least one of the statutes (Idaho) failed to state that drugs, etc., were not to be used by optometrists or that physicians were exempt from the action of the law. To quote from the compiled laws of Idaho, Section 1, Chapter 86:

> Any person shall be deemed to be practicing optometry within the meaning of this act who shall in any manner, except as provided in Section 15 [exempting merchants, spectacle venders, etc., but not physicians], examine eyes, test eyes, fit glasses, adjust frames, etc.

Section 17 further states that "any person who violates the provision of this chapter is guilty of misdemeanor."

But, you say, a statute of this kind could not be construed to include oculists. Perhaps not now; but "any person" may easily mean an oculist, especially if laws of this character become general.

Although the *laws* are apparently free from any definite action against the oculist, a rather hasty review of the optometric publications and the frank statements of some of the leaders afford ample food for serious thought. Under the title, "New York Society Favors Repeal of Physicians' Exemption Provision in Optometry Law,"[1] Dr. Merin, chairman of the executive committee, moved "that the city's [New York] delegates to the state convention should favor action toward getting legislation compelling the medical men to pass the optometry examination if they desire to practice optometry." Article 15 of the Public Health Laws amended to the close of the legislation of 1924, Section 300, reads as follows:

---

* Read before the Section on Ophthalmology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Optical Journal and Review, March 20, 1924.

> A person practices optometry within the meaning of this article who by any means or methods, other than by the use of drugs, diagnoses any optical deficiency or deformity, visual or muscular anomaly of the human eye, or prescribes lenses, prisms or ocular exercises for the correction or relief of the same, or who holds himself out as being able to do so.

This would clearly indicate that, should a New York oculist wish to fit glasses without the use of drugs or if he should use any mechanical device or prescribe lenses, prisms or ocular exercises, he is of necessity practicing optometry within the meaning of the law. The *Journal* goes on to say that after some debate the motion was carried; but as the 1924 law still exempts the physician, it is evident that they were unsuccessful in their efforts to influence the legislature, but it does not mean that they will not keep on trying until they accomplish their purpose.

Turning now to California, at a recent meeting of the wholesale optical jobbers of California, representatives of the optometry board, heading a committee of leading optometrists of the San Francisco district, made the statement that it was their intent to secure the passage of a law which would compel oculists to pass the board of optometry before being allowed to fit glasses. The California optometrists advertise that they alone are qualified through examination by a state board to fit glasses, and make their appeal for support on this basis. Two wholesale optical houses in Sacramento were notified by the optometrists of the city that unless they immediately discontinued all service to the oculist they would be boycotted. Work on oculists' prescriptions stopped at once and was resumed only after several days, when outside pressure compelled it. A similar attempt was made in Omaha and perhaps in other places and failed; but I understand that in Atlanta, Ga., at least one of the wholesale optical houses discontinued service to the oculists for some time on account of the threat of a boycott from the optometrists.

The secretary of the Wisconsin Association of Optometry is very frank. He says, in part:

> The time has come when we feel that the fitting of glasses belongs exclusively to the optometrists. I can see the look of "holy horror" with which the oculist would view this remark. Mind you, I don't say they are not qualified; at least some of them are anyway; but the fact remains that they do not qualify by passing any examination or coming before any board. We claim that the optometrists should do the glass fitting. I also claim that when there are any symptoms of any diseased conditions whatsoever, the case should be turned over to the medical man at once. . . . We do not want to throw bricks at any one; but fitting glasses belongs exclusively to the optometrists, and we propose to get what belongs to us.

Admitting that this gentleman is perfectly honest in his willingness to turn over "any diseased conditions whatsoever to the medical men," unless he is much more thoroughly skilled in diagnosing them than the majority of the optometrists with which we are acquainted, he will not be able to recognize the symptoms of many of our ocular diseases; and unless he is much more generous than the average, he would hesitate a long while before doing so just on general principles.

The Cleveland optometrists have been a little more fortunate in their legal adventures than some of their confrères. Under the date of Dec. 11, 1924, the *Optical Journal and Review* prints an article entitled "Cleveland Optometrists Win Important Suit against School Superintendent—Injunction against Favoritism to Oculists." They are evidently quoting from the court decision when they state that:

> It is further ordered and decreed that in conducting the physical examination preliminary to the issuance of a working permit to any school child, to determine the physical fitness of said child to work, the said defendant, his agents, representatives, and each of them, be enjoined and restrained from refusing to accept certificates issued by these plaintiffs and other duly qualified and licensed optometrists, who may certify that said minor's eyes have been correctly and properly examined and defects of vision corrected, unless the examination of said child's eyes by the school physician or his assistant physicians reveal an underlying pathological condition requiring treatment by a specialist in diseases of the eye and a refraction in accordance with such treatment. . . . . . .

As this ruling implies at least the necessity for a reexamination of all children by the school physician or his assistants who may or may not be qualified to recognize pathologic conditions of the eye, it would seem that the citizens of Cleveland were not only heaping to themselves extra expense, but, what is infinitely worse, exposing their school children to the danger of undetected defects which would be recognized and corrected by an oculist at the time of refraction.

For example, a young woman consulted me a few days ago after having been carefully refracted by an optometrist who has always been very prompt to refer all recognized pathologic conditions to an oculist; but still, on examining the fundus, I found that she had a thrombosis of three of the retinal veins, evidently due to a tuberculous periphlebitis, a serious condition as all will admit, but one which the average optometrist, no matter how honest, could easily fail to recognize.

This attitude of optometrists in many instances, no doubt, is due to faulty instruction rather than selfishness. For example, *Wellsworth*, the organ of the American Optical Company, in a recent article states that:

> It is time to turn whole-heartedly to the job of educating the public—all the public—to its need of our service! The aim of this education is to make the public eye-conscious. The work of the oculist is with sick eyes—which in themselves educate the public through the pain caused the owners of such eyes.

Statements of this character from a supposedly authentic source are particularly misleading to the optometrists and to the public. The most serious "sick eyes" do not educate the public through pain caused their "owners." Simple glaucoma, retinitis, optic atrophy, choroiditis and optic neuritis are painless and often show surprisingly little decrease in central vision, and failure to recognize the pathologic condition —and the optometrist is fitted neither by training nor by experience to recognize it—may easily not only result in the loss of vision but of life itself. "A little knowledge is a dangerous thing."

An enterprising optometrist of La Crosse, Wis., heads a handbill with the caption, "Optometry Straightened Crossed Eyes Twenty Years Ago." This is followed by two views of a rather good looking young woman with a very marked convergent strabismus without her glasses, the eyes straight with the glasses on. Beneath, "These pictures are shown you to explain what is meant by Optometry." Then follows the Slogan:

> OPTOMETRY belongs to the Optometrist.
> DENTISTRY belongs to the Dentists.
> LAW belongs to the Lawyers.
> MEDICINE belongs to the Physician.

His inference is perfectly obvious.

From another source comes the following:

> Your attitude to the optometrist, when you visit him for the purpose of having your eyes fitted, should be the same as to the doctor, the lawyer or the dentist. His training has given an insight into general health conditions, and he has the right, and it is his duty, to inquire into the general state of your health.

Recently a young woman, greatly agitated, consulted me with the story that she had been refracted by an optometrist the day previously. He found her to have a moderately high degree of myopic astigmatism, for which he prescribed glasses; and, except for the patient being overcorrected and the lenses off axis, the glasses were not so bad. But the optometrist had seen fit to tell her that she was in a very serious condition; must resign her position, stop all reading, and take a month of complete rest. As a careful examination of the patient failed to reveal any of the grave conditions alleged by the optometrist, a little reassurance with correction of the refraction relieved her symptoms and anxiety. If the optometrist had been satisfied to fit her with glasses and let it go at that, she would probably have been fairly contented; but he could not resist the temptation to give advice on subjects concerning which he was apparently very ignorant. Many of the optometric curriculums include courses in anatomy and physiology of the human eye, which no doubt gives the student an exaggerated idea of his knowledge of that organ; but at best the eye to him is a distinct organ of whose relation to the rest of the body he is blissfully ignorant, while to the physician it is an integral part of the physical make-up and considered as such. We must agree with the report of the British Council of Ophthalmologists that: "No course of training short of that required for full medical qualification can produce the skill and judgment necessary to recognize . . . a case in which the eye through disease or otherwise could not be treated by glasses. . . . Every medical man dealing with ophthalmic cases must be equipped with the knowledge necessary for ordinary qualifications in medicine, and, in addition, the special knowledge of the most delicate and complex sense organ in the body."

From the foregoing it is evident that there is a definite unrest on the part of a widely spread group of optometric leaders who are determined to secure for optometry the sole legal right to fit glasses. If the oculist will pass their board, all well and good. Of course, you say this can never be accomplished. Perhaps not; but we all know how easy it is for such legislation to slip through and how difficult it is to repeal it if it is once enacted.

From the events of the last two or three years, it would seem that an attack is to come from another quarter. For example, in California, where the optometrists are relatively strong, the following statute was enacted,[2] which states that:

> It shall be unlawful for any person [except those exempted in Section 10, which includes duly licensed physicians and surgeons] to replace or duplicate an ophthalmic lens or ophthalmic lenses with or without a prescription, or to dispense an ophthalmic lens or ophthalmic lenses from prescriptions, without having at the time of so doing a valid, unrevoked certificate as an optometrist; provided, however, that the provisions thereof shall not be construed so as to prevent an optical mechanic from doing the merely mechanical work upon such lenses. Any persons who shall replace or duplicate an ophthalmic lens or ophthalmic lenses with or without prescriptions, or shall dispense an ophthalmic lens or ophthalmic lenses from prescriptions, shall be deemed to be practicing optometry within the meaning of this act. An ophthalmic lens, within the meaning of this act, shall be any lens which has a spherical or cylindrical or prismatic power or value.
>
> 10. It shall be unlawful to take or make any measurements for the purpose of fitting or adapting an ophthalmic lens or ophthalmic lenses to the human eye, and any person who shall take or make any such measurements for such purpose shall be deemed to be practicing optometry within the meaning thereof.

Section 11, Paragraph 3, states in part that:

> The certificate of registration of any person registered as provided for in this act may be revoked or suspended for a fixed period by the state board of optometry who directly or indirectly accepts employment to practice optometry, from any person not having a valid, unrevoked certificate of registration as an optometrist or from any company or association the managing officer or officers of which do not have a valid, unrevoked certificate of registration as optometrists.

An attempt to pass a variation of the same law is being or has been tried in Mississippi, Colorado, Missouri, Texas and perhaps in some of the other states.

But, you say, why should the oculist worry about this? If the optometrists and the manufacturing opticians have a quarrel among themselves, let them fight it out. Dr. Derby, in an address before this section a year ago, said: "I believe it perfectly possible in the larger cities for the ophthalmologists to get together with the opticians and come to a working agreement which will be reasonably satisfactory to both." Dr. Derby is perfectly correct in his statement, but this is exactly what the optometrists *do not want.* At an open meeting of the California State Board of Optometry, July 31, 1924, a vice president of the association insisted that all optometrists boycott one of the large manufacturing optical houses because they served the oculist on an equal basis with the optometrist. In the San Francisco *Ad Age,* Aug. 20, 1924, Dr. Brombach, president of the State Optometric Society, is quoted as saying that:

> Certain manufacturers and wholesalers of optical lenses and supplies are in conspiracy with "quack" optometrists and oculists to defraud the public and bring disrepute upon the optometric profession,

evidently implying that such "quack" oculists were those who sent their prescriptions to an optician just as Dr. Derby suggests instead of to retail optometrists.

It is evident that the oculist has no recourse but to send his patients to his competitor, the retail optometrist, who has the privilege at least of criticizing the prescription and inviting the patient who has now become his customer to return to him for correction if the lenses turn out to be as unsatisfactory as he fears they will be. One California oculist of note told me that less than 25 per cent. of his refraction patients ever returned after sending them to the retail optometrists. But, you say, why not send them to the retail dispensing optician who does not do refraction? In California at least there is legally no such person, as the state board of optometry has recently ruled that unless a dispensing optician, required by law to have an optometric license, installs the equipment for, and does a certain amount of refracting, his license may be revoked. Where such rulings are in force, the dispenser must be a registered optometrist and all his assistants who have anything to do with the adjustment of glasses must likewise be registered. He must have an expensive equipment, and his operating overhead will be proportionally heavy. He is a salesman, and it is to his interest to equip your patient but his customer with as expensive an outfit as possible. Furthermore, this optometrist has a file of your refraction cases, with copies of your prescriptions and with a perfect right, according to his standard of ethics, to solicit their business in such manner as he may see fit.

---

[2] Optometry Law, Chapter 164, Approved May 17, 1923; Section 10½, paragraph 9.

It was thoroughly impressed on me years ago by my colleague, Dr. Harold Gifford, that it was as much the duty of the physician to protect his patient from exploitation by overzealous optical salesmen as it was to supply him with an accurately determined prescription. The state board of optometry of one of our states, acting under its enabling act, recently ruled that the advertising of prices in connection with the practice of optometry and optical service constituted a breach of ethics and made the offender liable to revocation of his license to the board because of violation of this ruling. However, this action brought down on them the following resolution[3] from the advertising club of one of their cities:

> Resolved, That the ——— Advertising Club regards any attempt to interfere with the right of an individual to advertise prices, where such advertising is correct in statement and not deceptive, as unwarranted and menacing and constitutes an assumption of authority in the abridgment of legitimate personal freedom and initiative which is not intended by law.

But, some may say, What is the difference? Let the patient take care of himself. The automobile manufacturer has seen fit to protect his patron by establishing certain fixed charges for services on his make of car; the contract of the phonograph salesman is canceled if he sells above the published price; and I insist that we as physicians have an equal right and responsibility in protecting our patients against exorbitant prices for the filling of our prescriptions. Our fee should be in accordance with the service rendered and, when possible, our prescription for glasses should be sent to a manufacturing optician with whom we have a definite agreement as to the price he shall charge our patients, this price to include a reasonable but not exorbitant profit. If situated so he can do all frame fitting, a definite charge should be allowed for this service. It may be necessary to alter agreed prices from time to time according to general commercial conditions; but prices are not to be changed without consulting the oculist, nor should the optician be permitted to substitute a more expensive type of frame or lens than that ordered even at the request of the patient, without first consulting the oculist who wrote the prescription.

The foregoing plan reacts helpfully in many ways. For example, it relieves the oculist of the troublesome details incident to selecting and fitting frames; the loss from unpaid spectacle bills, breakage, etc. His patient has the advantage of specialized service in the manufacture of lenses and adjustment of frames in contrast to that which can be rendered by the licensed graduate optometrists. The president emeritus of one of the large western schools of optometry says:

> You all know that I know just exactly what training, both theoretical and practical, the optometry student is given according to the law, in our school or any other regular school of optometry. The prescribed course does not call for the practical knowledge of any of the essentials of making and delivering a pair of glasses to a patient. . . . In our school we do not pretend to make an optician of him, and neither does he expect to become one, but according to sections 9 and 10, he can't help himself, and some of him must eventually become a mechanic if it is in him.

From this statement by one of their leading educators, who in your opinion is best fitted to care for the filling of our prescriptions, the licensed optometrist or the thoroughly trained manufacturing optician? Furthermore, patients soon learn that the oculist has no financial interest in prescribing glasses, respects him accordingly, and assures his friends that the doctor will not put glasses on him unless he needs them. And, most important of all, at the time of refraction he is given a thorough intra-ocular examination, and disease is discovered if present, which in many cases may prevent an otherwise fatal outcome.

CONCLUSION

Let us remember that there is an active group of influential optometrists who are perfectly willing to prevent by law all who are not registered optometrists from fitting glasses, and that active measures are contemplated to compel the oculist to pass their boards before he can legally practice this phase of his profession. Let us be suspicious of bills regulating optometry containing ambiguous clauses, or those restricting the rights of manufacturing opticians who ordinarily serve the oculist. With Dr. Derby, let us remember that ours is a profession and not a trade. We cannot afford to face the charge of making a profit out of the glasses we prescribe, but we do have the right to protect our patients from the exorbitant prices and high pressure retail sales methods of the optometrists. We must be awake to the situation; and, while we may have no quarrel with the optometrist who limits himself strictly to his own field, at the same time, we owe it to our profession and to our patients to forestall any legislation which will limit the fitting of glasses to a single group.

600 Brandeis Theater Building.

ABSTRACT OF DISCUSSION

Dr. C. D. Wescott, Chicago: To me a refraction case is an opportunity to make a complete study of a pair of eyes for which I may not only do the best I can to promote their present efficiency, but by my advice and counsel as a physician, keep them well for all time. I cannot make such an examination at any age to my own satisfaction without the use of drugs, and I am finding increasing need of all the general medical knowledge I possess. We are all seeing in the eye, almost daily, evidences of general disease, perhaps not yet manifest in other parts of the body and at a time when something can be done about it. I ask my patients to report once a year in order that we may know that everything is well and at the same time I advise a general physical examination. Some of my friends have been taking my advice for thirty-five years, and it is a joy to witness the results. There is surprisingly little cataract, glaucoma, or disease of the retina. The optometrist is not prepared or legally qualified to render such service. Unfortunately, there are at least 50,000,000 people in this country who should have a good refraction every two or three years. There are only 974 ophthalmologists who are subscribers to our *Transactions*. Less than 450 were registered last year at Chicago. Let us assume that there are 2,000 qualified eye men in the United States. I am not very good at mathematics, but the answer I get is this, that it is impossible for every one to get the service we would like to give and there are some people so situated financially or geographically, or both, that they will not consult the ophthalmologist. Is there a field for the optometrist and can we do anything to help—not the optometrist perhaps, but the people who now suffer at his hands? In spite of all our opposition, optometry is licensed or regulated in every state in the Union and the District of Columbia. From what Dr. Patton has told us and from literature kindly furnished me by Dr. Woodward, director of the Bureau of Legal Medicine and Legislation, the optometrist is now attempting to practice medicine without legal or moral right. He hates us bitterly for our opposition, and will "get even" in any way that he can.

---

[3] Ad Age, Oct. 8, 1924.

Dr. W. C. Woodward, Chicago: I can endorse everything Dr. Patton has said. Possibly I might add, too, that current optometric literature indicates a willingness on the part of the optometrist to edge over into the field of medicine, even while endeavoring to keep the ophthalmologist from fitting glasses. Such a committee has been suggested, and members of this section are already working on this problem and will tell us what we had best do about it. We shall continue to keep in touch with movements such as that described by Dr. Patton, and shall pass to you such information as we get.

Dr. Alexander Duane, New York: It seems to me that this is a paper requiring not so much comment as action. On the one hand, we have a large body of men, militant, well organized, commercially minded, with the hustling and the advertising methods that commercialism implies, frankly seeking to arrogate to themselves the right to handle, prescribe for and fit cases of refraction. On the other hand, we have the medical profession, unorganized, apathetic or even, in large part through ignorance, allowing the claims of the optometrist and giving them active support. The public, furthermore, is naturally on the side of those who advertise much and who claim to have superior skill and more scientific methods. In meeting this situation it will not do simply to cite cases, which are frequent enough, but yet exceptional, in which optometrists have done some obviously serious damage by their ministrations. Much rather should we assert the broad principle that the proper treatment of every case of refraction requires not simply a correction with glasses, no matter how carefully fitted, but a consideration of the symptoms, the attendant eye condition, the general state and psychologic characteristics of the patient, and the numerous conditions besides eyestrain which may give rise to the symptoms. In other words, it requires a broad medical knowledge and experience which none but an educated physician can possess. The half knowledge that the best educated optometrist can gain is a fallacious and often a dangerous guide in appraising the true significance of refractive errors. In announcing and defending this principle we should do three things: First, we should be sure that we ourselves are living up to it; in other words, that we are examining our patients in no perfunctory way, that we are not simply examining for glasses, but with patience and care are going into all the other factors that may affect him and are rendering him a sound judgment on the basis of this examination. Then, and then only, shall we do our full duty to the patient and make it clear to him that we have done for him what no optometrist, however skilled, could have accomplished. In the second place, we must educate the medical profession. Hundreds of physicians are sending their patients to optometrists simply because they do not recognize the cardinal fact that refraction and medicine are intimately interwoven and that the functions of the eye cannot be dissociated from the functions of the body in general. Finally, we must educate the public by widely diffused, well prepared information.

Dr. Charles A. Bahn, New Orleans: Within fifteen years refraction will probably be almost entirely out of medical hands because we are not willing to assume the full responsibility of conserving the public's eyesight in a reasonable, practically complete and economic way. The evident intent of optometry is to force ophthalmologists out of the field, to use our prescriptions as an expedient for the present, but to use the family physician almost exclusively in the future. Every optician is potentially an optometrist when finally the opportunity offers. The time has come when we shall either have to assume the full responsibility for conserving the public's eyesight with all that goes with it, which includes the supervision of the dispensing of glasses, or else we shall have to get out of refraction as gracefully as we can before we are forced out. Our problem is this: Do we want to make ourselves competent to assume this responsibility or do we want optometry to do it? If we want this increased field of honest usefulness, we shall have to get on the job and thoroughly understand all its phases and render the public greater and more practical service. If we do not want this responsibility, let us be frank enough to say so. There is but one way to check optometric legislation, and that is to stop feeding optometrists. Our present attitude of feeding optometry with one hand and throwing bricks at it with the other is vicious If optometry can serve the public better than we, let us be honest enough to say so. If not, why should we be ashamed or afraid to educate the public and the medical profession about ourselves and that we shall serve them in a complete, honest and efficient way? The only hope that I can see in saving refraction to medicine lies in prompt, practical, aggressive action on the part of the membership, of you and me; in careful thought on this problem, and in a keen realization that the handwriting is on the wall, and that we must either get in or get out.

Dr. George S. Derby, Boston: Dr. Patton's paper is a timely one. In most states we meet this situation constantly in one or more of its ramifications. With the optometrist it is good business to obtain as complete a control as possible of the refraction and the selling of glasses. It means money in his pocket, and that is one of the strongest urges of nature. They are organized primarily from a business point of view, secondarily from the educational and scientific. On the other hand, we are organized in the opposite manner—primarily from the educational and scientific standpoint, and not at all from the business side. Therefore, when it comes to fighting legislation that is contrary to our ideals and even to our business interests, we must depend on the amateur efforts of unorganized volunteers. When such a situation as Dr. Patton described threatens, it seems to me that it is up to ourselves and to our local ophthalmologic societies to be on the alert. In other words, to have a permanent committee which should keep its eyes open for harmful legislation. If such legislation is introduced it should be immediately called to the attention of the ophthalmologic societies, funds should be raised, and if necessary the state medical societies should be called on for help and an organized effort should be made to defeat such legislation. I think Dr. Woodward brought out one very good idea, and that is that it is absolutely up to us, and we must do the work in our own state and county societies.

Dr. E. E. Holt, Portland, Maine: During the World War I was medical aide to the governor of Maine, in forming and supervising the medical advisory boards and had my office in the capitol with the adjutant general, who was instrumental in getting the optometry bill through the legislature and was president of the Maine Association of Optometrists, also chairman of the examining board of optometry. At the hearing for establishing this board of optometry, among other things it was stated that the optometrist would confine himself to the fitting of glasses and would immediately refer all cases needing medical treatment to the ophthalmologist. I showed the fallacy of expecting men to do a thing they didn't know how to do, in such a way that there was an estrangement between me and the optometrists. The adjutant general, being a good fellow and a sensible man, finally admitted that it would be impossible for an optometrist to know the cases that might need urgent treatment. It is a trade with them and they are in it purely for the business there is in it, and, like men in any other business, are doing everything that they think will give them more business. If the optometrists find that it will be for their best interests to do the things that Dr. Patton has pointed out that they might do, you can be assured that they will attempt to do them, so it behooves us to be on our guard, as he suggests, and do better work.

Dr. Hiram Woods, Baltimore: An attempt was made last year in Maryland to amend the present optometry law. Certain optometrists, but not all of them, sought the right to use the term "Doctor" before their names, but with "optometrist" following. When the present law was enacted, several optometrists in Baltimore recognized the wrong in allowing any one not a graduate of medicine to use them term "Doctor" or its equivalent. The present law reads, in part: "Any person holding a license under this subtitle who shall attach to his name or use the title, M.D., Surgeon, Doctor, Physician, Eye Specialist, Oculist, Ophthalmologist, Doctor of Ophthalmology, Doctor of Optometry, Doctor of Optics, or any title containing the word Doctor or the abbreviation that will or can convey the impression that he is engaged in the treatment of diseases or injuries of the human eye, or make use of drugs, medicine or surgery, in the practice of optometry, shall be guilty of a misdemeanor, and upon conviction thereof shall be fined not more than two hundred dollars, or imprisoned not more than three months, or both fined and imprisoned, and his license may be revoked, in the discretion of the court." The proposed amendment to this paragraph was: "Provided, however, that any person who has received a degree from a legally chartered college having the authority to give the degree of 'Doctor of Optics' or 'Doctor of Optometry' may use the title 'Dr.' in connection with his name, provided his name is followed by the word 'optometrist.'" It is easily seen that the word "optometrist" as herein used does not modify the generally accepted meaning of the word "doctor." The popular meaning of a name preceded by "doctor" and followed by "optometrist" would almost certainly be that the individual was both a "doctor" and an "optometrist." The term "doctor" has one popular significance when used in connection with any defect of the human body. The bill passed the lower house but was defeated in the senate.

Dr. John O. McReynolds, Dallas, Texas: We all appreciate the splendid work that has been done and will be done by the Section on Ophthalmology of the American Medical Association. But this is a national organization. It functions as a national organization. The dangers that have been mentioned must be met through the channels of state organizations and not national organizations. There has been no effort, and there probably will be no effort, made to carry these objectionable measures through the national congress, but they have been carried, and will be carried, through state legislatures. It is, therefore, in each individual state that this battle must be fought out. We may resolve in the Section on Ophthalmology that a certain course of procedure is best, and that may be the best procedure on one battle field, but it is not necessarily the best procedure where the conditions are different. The battle must be fought in each state legislature according to the problems presented.

Dr. J. W. Kimberlin, Kansas City, Mo.: I think one of the layman's indictments of the physician is true. There are three kinds of men doing refraction. The first class, which we believe is the only class that has a right to, are the men who are trained in medicine, men who have later taken a thorough training in the eye. In the second class would be optometrists, opticians and pedlers of ten cent store stuff. The third class is the class on which the most of their indictment is based, graduates in medicine who have had no training in the eye or in refraction. The indictment is that many a man who has the degree of M.D. and has the legal right to do refraction knows much less about the eye than they do, and they are correct. If there is an injustice there, and I really believe there is, touching the welfare of the people, I believe that it should be corrected not by the optometrist or their boards, but by organized medicine. The board for ophthalmic examination is a fine step in the right direction, and the degree given in Colorado of Doctor of Ophthalmology is fine. I think organized medicine should work out some plan which will prevent unqualified medical men from prescribing glasses, but it will be a difficult problem to solve.

Dr. Charles P. Small, Chicago: In Illinois there is apparently a very strong effort on the part of osteopaths and others to try to put on the statute books laws that would be most unacceptable to ophthalmologists. A couple of weeks ago I was called on by an optometrist who told me about a bill they were trying to defeat. The bill had not come up for final reading, but if passed it would allow osteopaths, chiropractors and every other cult to refract eyes. He wanted to know what we (the Chicago Ophthalmological Society) were going to do about it. I got as busy as I could by interviews and letters and telegrams. Dr. Woodward gave me some practical help, saying that it really was a matter for the state medical society rather than for the local ophthalmological society. This particular bill was killed before it came up for the last reading, and it gave us a little time to think the matter over. We have acted on Dr. Woodward's suggestion and have appointed a legislative committee of the Chicago Ophthalmological Society, consisting of three members from three different cities of the state, who will keep their eyes open and be ready to notify the society of anything that may come up, in time to take necessary action.

Dr. John A. Donovan, Butte, Mont.: I am chairman of the committee on legislation in our state society, and this particular bill was sent to every ophthalmologist in the state and did not go through without our approval. In our state we watch things, and they do not often pass a bill without our consent.

Dr. J. M. Patton, Omaha: If the two suggestions that have been mentioned here can be carried out, namely, the appointment of a strong central committee from this organization to head up our consideration of the optometric situation and a local committee to see that each state is adequately organized in order that the situation may be kept under close observation, our discussion this afternoon has not been useless. We know that the other group, the optometrists, are thoroughly in earnest about getting control of the fitting of glasses. A bill was introduced by the optometrists at the last session of the Wisconsin legislature which would require all physicians graduating in that state after Jan. 1, 1926, to take two years additional in some recognized school of optometry and then pass the optometric state board before they could legally fit glasses. Happily, this did not become a law, but it does not mean that they will not try again. Dr. Bahn has put the thing squarely: Shall we refract or not refract? I say it is up to us. Some of us may not care about refraction, but when we accept the degree of physician, we accept the responsibility that goes with it. The members of the British Medical Association in considering the demands of the optometrists maintain, and I am sure we will agree with their views, that no individual is sufficiently trained to take the responsibility of caring for the ills of the human eye with training short of the complete education necessary to secure a license to practice medicine.

Endocrine Therapy.—The antagonism between epinephrin or thyroxin, on the one hand, and insulin, on the other, according to Langdon Brown (Special Discussion on Endocrine Therapy, *Proc. Roy. Soc. Med.* **18**:27 [June] 1925) is not the direct antagonism of pituitary extract and insulin, but an indirect one through the liver, epinephrin and thyroxin tending to empty the glycogen reservoirs and to flood the blood with sugar, while insulin checks the conversion of protein and fat into glycogen and at the same time increases the assimilation of sugar by the tissues. Such observations as these have led Calvert to apply insulin to the treatment of hyperthyroidism, while others have used it in the treatment of nondiabetic acetonemia. Its effect on fat metabolism suggests that, in combination with dextrose, insulin might be useful for hepatic toxemias such as postanesthetic vomiting. Cramer has also shown that insulin can prevent death in the experimental hyperpyrexia produced by tetrahydronaphthylamine through stimulation of the thyroid, suprarenals and probably the anterior lobe of the pituitary. This is an observation worthy of clinical application. The antagonism between the suprarenals or thyroid and the pancreas is also suggested by Loewi's test. The cooperation between pancreas and parathyroids is shown by the liability to glycosuria after parathyroidectomy, and by the calcium drainage resulting from defect of either of these glands. The theory of cooperation between the suprarenals, thyroid and pituitary, on the one hand, and between the pancreas and parathyroids, on the other, and of antagonism between these two groups, has experimental support.

EPIDEMIOLOGIC METHODS *

DON M. GRISWOLD, M.D., D.P.H.
State Epidemiologist, State University of Iowa
IOWA CITY

Epidemiology is such a recently organized branch of science that standard methods or standard practices have not yet arrived. This is as it should be, for a solution should be fairly uniform before purification by crystallization is attempted.

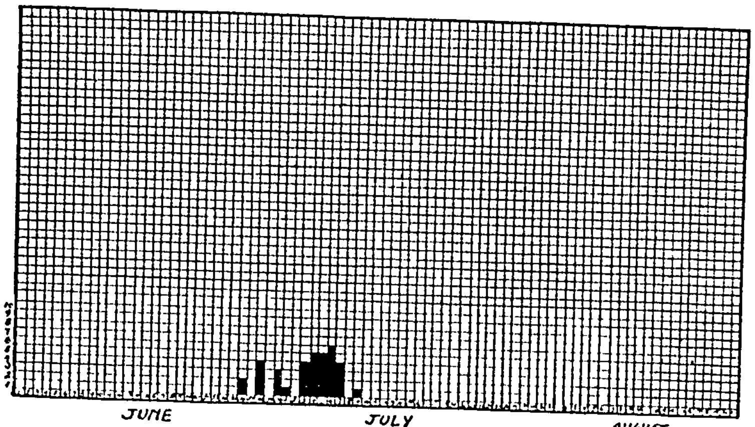


Fig. 1.—Chronological chart: cases of typhoid at Pella, Iowa, 1920.

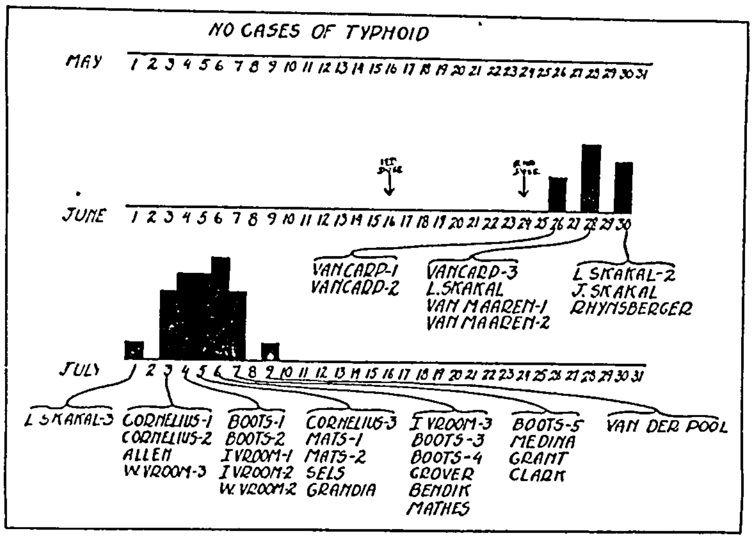


Fig. 2.—Outbreak of typhoid, Pella, Iowa, June, 1920: chronological chart; date of onset.

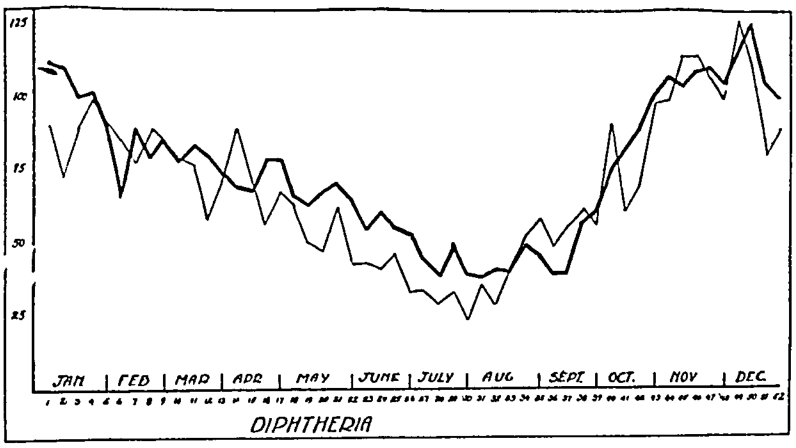


Fig. 3.—Chronological chart for a city of 1,000,000 population: heavy line, normal expectancy; light line, cases reported in 1919.

An epidemiologist working in a single city can accumulate many data that are more or less static. Such matters as the possibilities of pollution of the water supply, the amount of unpasteurized milk sold and the accuracy of the pasteurizing process used, the unsewered districts and many other such data when once gathered and kept up to date aid materially in the epidemiologic study of any outbreak.

The state epidemiologist, however, has quite a different set of problems. His work is found in small towns as well as large ones, in cities with well organized health departments as well as towns with none; the variety is unending. Out of an experience of this kind, a few of the many methods tried are being found more applicable than some others.

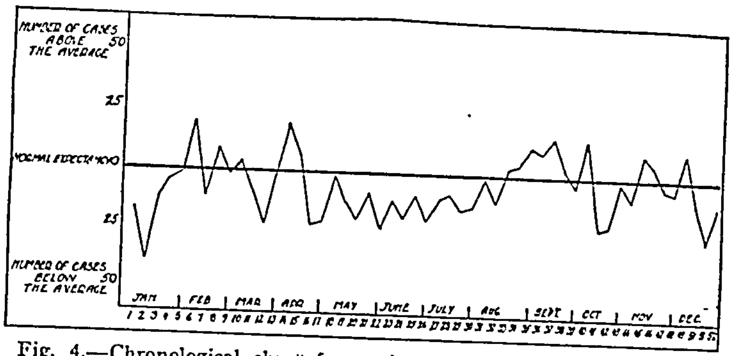


Fig. 4.—Chronological chart for a city of 1,000,000 population: heavy line, normal expectancy; light line, cases reported by weeks.

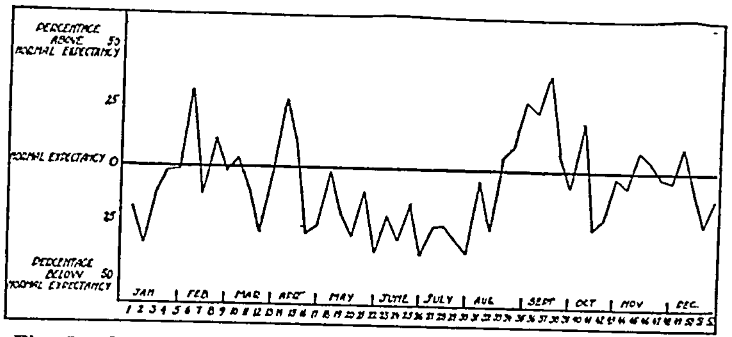


Fig. 5.—Chronological chart for a city of 1,000,000 population: heavy line, normal expectancy; light line, per cent. of variation from normal expectancy.

A slogan of the U. S. Public Health Service might be paraphrased as follows:

> Before adequate administrative control of communicable diseases can be obtained, it must be known when, where and under what circumstances cases are occurring.

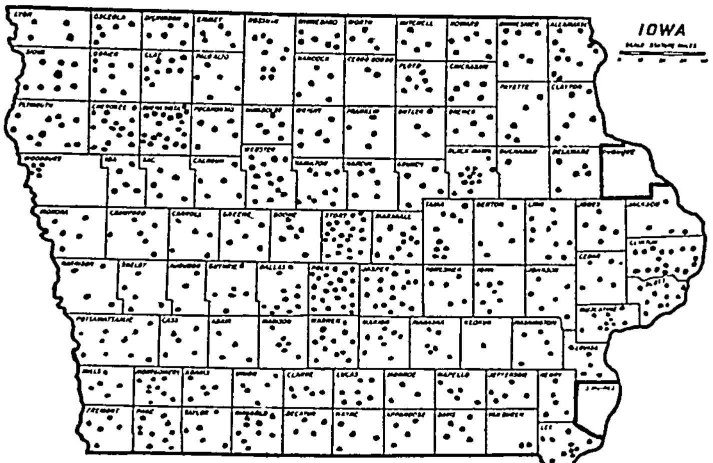


Fig. 6.—Spot map showing where cases of communicable disease are occurring.

We have all given up the idea that the attending physician is going to gather any great amount of epidemiologic data for us. The attending physician has served his purpose when he has informed the health department where a health menace exists.

---

* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

The epidemiologist must take this clue and work out his own salvation. His first problem is to determine when an epidemic exists. There are many divergent opinions on this point. Some newly appointed health officers feel that an epidemic exists when more cases than usual are reported. Such confidence in the usual morbidity reports is fast disappearing. Some of the more conservative members of this group feel that the safest index of the existence of an epidemic is the increase of deaths from all causes. It is evident to all of us that some nonemotional method of determining when an epidemic exists or is impending is highly desirable. For example, there are many court decisions to the effect that vaccination against smallpox can be required "when an epidemic exists or is impending."

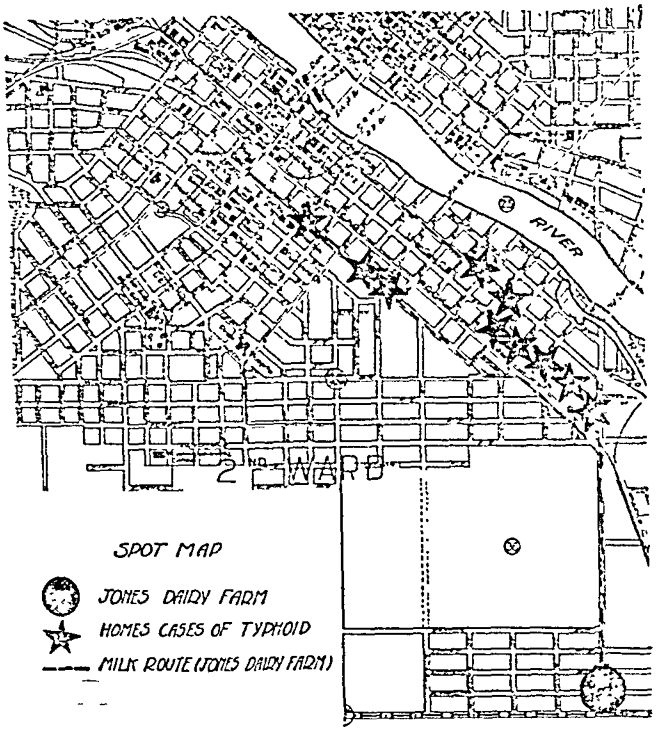
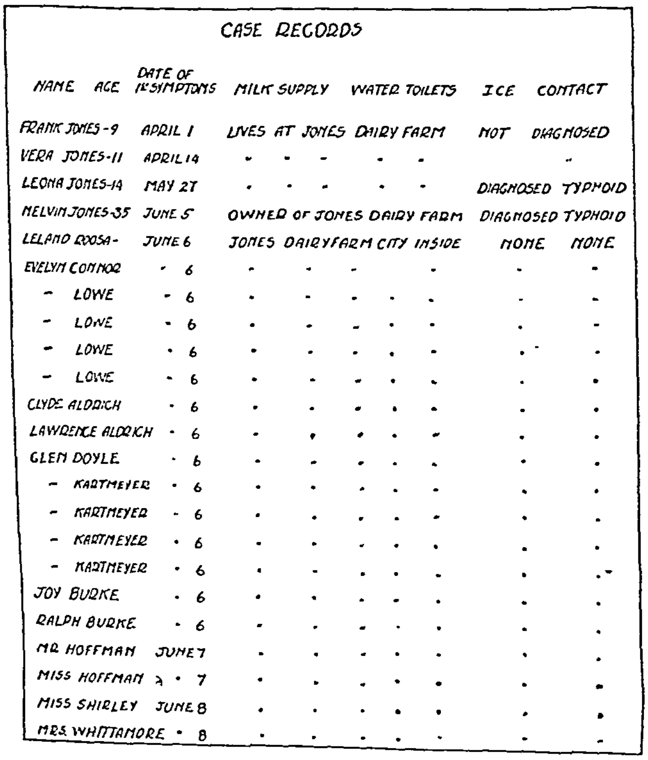


Fig. 7.—Relation of an outbreak of typhoid to a milk route.



CASE RECORDS

NAME AGE	DATE OF 1st SYMPTOMS	MILK SUPPLY	WATER	TOILETS	ICE	CONTACT
FRANK JONES-9	APRIL 1	LIVES AT JONES DAIRY FARM			NOT	DIAGNOSED
VERA JONES-11	APRIL 14	. .	. .	.		.
LEONA JONES-14	MAY 27	. .	. .	.	DIAGNOSED	TYPHOID
MELVIN JONES-35	JUNE 5	OWNER OF JONES DAIRY FARM			DIAGNOSED	TYPHOID
LELAND ROOSA-	JUNE 6	JONES DAIRYFARM	CITY	INSIDE	NONE	NONE
EVELYN CONNOR	. 6	. .	.	.	.	.
- LOWE	. 6	. .	. .	.	.	.
- LOWE	. 6	. .	. .	.	.	.
- LOWE	. 6	. .	. .	.	.	.
- LOWE	. 6	. .	. .	.	.	.
CLYDE ALDRICH	. 6	. .	. .	.	.	.
LAWRENCE ALDRICH	. 6	. .	. .	.	.	.
GLEN DOYLE	. 6	. .	. .	.	.	.
- KARTMEYER	. 6	. .	. .	.	.	.
- KARTMEYER	. 6	. .	. .	.	.	.
- KARTMEYER	. 6	. .	. .	.	.	.
- KARTMEYER	. 6	. .	. .	.	.	.
JOY BURKE	. 6	. .	. .	.	.	.
RALPH BURKE	. 6	. .	. .	.	.	.
MR HOFFMAN	JUNE 7	. .	. .	.	.	.
MISS HOFFMAN	. 7	. .	. .	.	.	.
MISS SHIRLEY	JUNE 8	. .	. .	.	.	.
MRS. WHITTAMORE	. 8	. .	. .	.	.	.

Fig. 8.—Case records of an epidemic.

Figures 1, 2, 3, 4 and 5 illustrate methods that have been used to decide when an epidemic exists or is impending.

No. .... Name........ Address........ Reported by........ Date........
Age ... Sex.... Marital state.... Color.... Nationality.... Occupation....
No adults ... No children.... Ages...... Sanitary conditions..............
Water used...... Flies...... Garbage...... Vermin...... Stable near.......
Milk used Amt. .. ... Bottled........ Loose........ Dealer...............
Work on Premises: Flowers...... Tailoring...... Sewing...... Cigars......
Millinery ..... Laundry...... Other.....................................
Any member of household connected with handling public food? ....
School attended ...... Address....... Class....... Last day in school.......
Special classes, parties, excursion, theaters, etc., attended....................
Visits and visitors in last two weeks.....................................

Fig. 9.—General data that appear on reverse side of all case record cards. These cards are 5 by 8 inches.

SMALLPOX

Dates: Onset............. Quarantine.............. Release...............
Type of disease ....
Previous vaccination history ....
Family: Adults...... Children...... Vaccination history...................
Address of intimate associates (school or business)..........................
Hospital........................... Termination............................
Date......................... Investigation....................................

Fig. 10.—Individual data in a case of smallpox.

TYPHOID FEVER

Date of first symptoms.................. Date of taking bed..................
Doctor's first call. .... Physician......... .. Date reported ....
Previous typhoid history ....
No. in family: Adults.. Children... Help.. Occupation... School attended...
Family history for typhoid............. ....
Water....... Milk....... Ice....... Food....... Flies....... Toilet.......
Fresh vegetables.................. Other possible sources...................
Widal tests...
Blood cultures.............. ....
Complications............ Hospital?............ Termination............
Date.......................... Investigation...............................

Fig. 11.—Individual data in a case of typhoid.

CHRONOLOGICAL CHARTS

Figure 1 represents the simplest form of chronological record and is suitable for small villages. Figure 2 is used in towns or small cities where the names of patients are well known. It is a distinct aid to the health officer or the state epidemiologist to getting cases reported. Figure 3 shows the normal expectancy diseases as they occur in many localities in the same state for a period of years cannot help but say a word of encouragement of the excellent graphic methods shown by Dr. Griswold in his charts. I had occasion a year ago to spend the greater part of a holiday with Dr. Griswold in his University laboratory in Iowa City and saw the high type of work that he and his associates were doing and teaching. Those of us who have been in the larger state health game and have been privileged from that standpoint to see the errors that are being made through lack of use of graphic methods in the smaller municipalities know how readily it is possible with a well organized state staff, granted morbidity reporting is fairly complete, to sit in the central health office and pick up two thirds of the health workers on disease incidence before they are really aware of its significance. In literally hundreds of instances, with two trained girls at my elbow, one watching the township disease files and the other the municipality files, where we had tabulated and charted the records as reports came to us each week and for the fraction of a week, at the end of a month these clerks would whisper the essential word in my ear. In other words, they handed me the figures. A pencil graph showed trends, and then the long distance telephone would be brought into action when we would ask for an explanation of this excess incidence in a field often a hundred miles away. It was usually a surprise to the local health officer that we in the central state office knew so much more about his local condition than he knew in the field. It put the local health official on his toes, however, to watch his work in the future. The centralized study of vital statistics and the portraying of state epidemiologic data had a tremendous influence for good on all of the subordinate health workers throughout the state.

EXPERIMENTAL HIGH INTESTINAL OBSTRUCTION

RELIEF BY IRRIGATION AND CONTROL OF ALKALOSIS: PRELIMINARY REPORT *

MILTON M. PORTIS, M.D.
AND
BERNARD PORTIS, M.D.
CHICAGO

Acute duodenal obstruction is now assuming great importance because of the performance of more radical gastric surgery and of the newer conceptions of alkalosis and gastric tetany. We have attempted in this experimental study to produce an artificial duodenal obstruction and to remove the toxic substance by irrigation and to determine the relative importance of the involved factors.

The literature contains numerous reports regarding high intestinal obstruction and the effects caused by closed loops of intestine at different levels. Neuman [1] first described the usual syndrome in 1861, and Kussmaul [2] later confirmed his observations. Many have observed a profound and even rapidly fatal intoxication caused by substances formed in an obstructed bowel. The higher the obstruction, the more rapid and toxic the picture. Obstructions in the duodenum are rapidly fatal.

All are agreed that the severe reaction following high intestinal obstruction is due to some highly toxic substance. The origin of this product is still much in doubt. Whipple [3] and his co-workers consider the poison to be a primary proteose formed by perverted activity of the intestinal mucosa. Dragstedt [4] and his associates, however, attach great importance to the action of bacteria, both proteolytic and putrefactive. Draper [5] believes that there is a perverted activity of the mucosal epithelium. He found that excision of a loop obstructed for thirty-six hours or sometimes less fails to save the animal's life. This, he thought, might be due to an impairment of the function of the liver, for the camphor-glycuronic pairing power decreases in the liver of dogs with an obstructed duodenum. This may also indicate a decreased power to detoxicate duodenal contents.

Davis and Stone [6] have determined that loop washings can become toxic outside the body and produce symptoms like the contents of closed loops when injected into animals. They therefore conclude that a perverted activity of the mucosa is not present. Histamin has been isolated by some workers, and they have considered this of importance in the production of the symptoms. Hausler and Foster [7] stated that in high intestinal obstruction a shock complex is more of a factor than a toxic reaction. It seems that the toxic products formed in high intestinal obstruction are probably due to bacteria as well as to an abnormal function of the duodenal mucosa. Injury to the mucous membrane may facilitate the absorption of the poison.

Many have studied the chemical changes in the blood in high intestinal obstruction, both in patients and in animals. Haden and Orr [8] observed in a number of patients following gastro-enterostomy that more or less serious symptoms arose, which they thought were probably due to absorption of a poison formed by stasis in the duodenum. Under such conditions there is a marked rise of nonprotein nitrogen bodies in the blood, with marked increase in the nitrogen excretion from the kidney. This increase in the blood is roughly proportional to the severity of the intoxication. There is a low chlorid content in the blood, and there may be a suppression in the urine. Sodium is thus left free and unites with the carbonates to give sodium carbonate and eventually an alkalosis. These authors consider the disturbance in the chlorid metabolism to be analogous to the reaction found in pneumonia, in which case there is a proteose intoxication. Whipple noted similar changes with an increase from three to ten times the normal of the nonprotein nitrogen bodies in the blood, according to the severity of the condition. Saito [9] observed that the blood urea nitrogen varied from less than 30 per cent. to more than 90 per cent. of the total nonprotein nitrogen. He likewise noted a hyperglycemia in high intestinal obstruction. Dixon [10] believes that the marked depression of the chlorids in the blood plasma may be due to a union of the toxins with the chlorids. As yet, no satisfactory explanation has been given for the phenomena observed.

---

* *From the Hull Physiologic Laboratory, University of Chicago.*

1. Neuman, quoted by Kussmaul (*Footnote 2*).

2. Kussmaul: Deutsch. Arch. f. klin. Med. **6:** 455, 1869.

3. Whipple, G. H.: Proteose Intoxication, J. A. M. A. **67:** 15 (July 1) 1916. Cooke, J. V.; Rodenbaugh, F. H., and Whipple, G. H.: J. Exper. Med. **23:** 717 (June) 1916. Whipple, G. H.: ibid. **23:** 133 (Jan.) 1916; **25:** 479 (March) 1917.

4. Dragstedt, L. R., and *Dragstedt*, C. A.: J. Exper. Med. **25:** 439 (March) 1917; Dragstedt, C. A., and Dragstedt, L. R.: Acute Dilatation of the Stomach, J. A. M. A. **79:** 612 (Aug. 19) 1922; Am. J. Physiol. **46:** 584 (Aug.) 1918.

5. Draper, J. W.: Intestinal Obstruction, J. A. M. A. **67:** 1080 (Oct. 7) 1916.

6. Davis, D. M., and Stone, H. B.: J. Exper. Med. **26:** 687 (Nov.) 1917.

7. Hausler, R. W., and Foster, W. C.: Studies of Acute Intestinal Obstruction: *Different* Types of Obstruction Produced Under Local Anesthesia, Arch. Int. Med. **34:** 97 (July) 1924; Acute Strangulation, ibid. **34:** 697 (Nov.) 1924.

8. Haden, L. R., and Orr, T. G.: Bull. Johns Hopkins Hosp. **34:** 26 (Jan.) 1923.

9. Saito, S.: Mitt. a. d. med. Fak. d. k. Univ. zu Tokyo **31:** 117, 1924.

10. Dixon, C. F.: Value of Sodium Chlorid in Treatment of Duodenal Intoxication, J. A. M. A. **82:** 1498 (May 10) 1924.

High intestinal obstruction is usually accompanied by a marked increase in the carbon dioxid combining power. This tendency to alkalosis may explain the gastric tetany observed in the experimental animals and is probably a real factor in a fatal termination. A more complete review of the literature will be included in a later report.

EXPERIMENTS

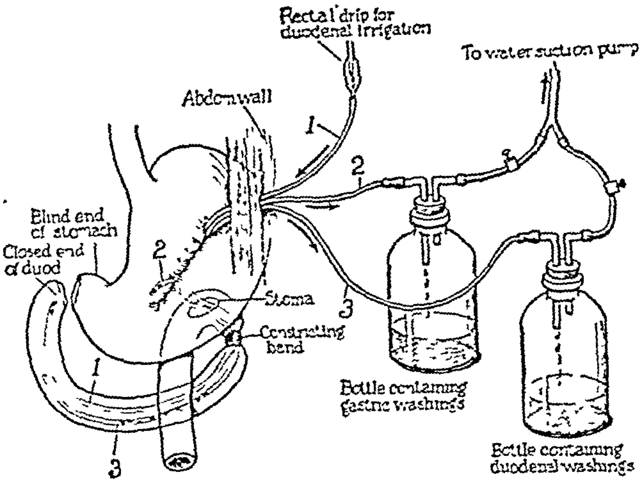
The operative and irrigation procedures were performed on eighteen dogs. A small tube passed through the mouth into the stomach was placed during the operation into the proximal loop through the gastro-enterostomy opening. It was pushed up to the closed end of the duodenum. Through this tube a constant drainage and washing of the duodenal loop was carried out, and the tube left in situ as long as desired. We found difficulty in keeping the tube in the dog's mouth, even bringing it out at an angle of the jaw, and hence, for the purpose of this experiment, brought the upper end of the tube out through a gastric fistula.

In the later work we introduced two tubes into the proximal loop, because a single tube did not suffice to produce an efficient method of irrigation. One tube was passed up to the closed end of the proximal duodenal loop and the other kept in the same loop near the gastro-enterostomy opening. Physiologic sodium chlorid solution or Ringer's solution was introduced through the longer tube at a slow constant rate from an elevated bottle. The fluid was withdrawn by means of the shorter tube by siphonage. Later, gentle suction from a water pump was found to be more positive. The dog was supported in a frame provided with a head rest. The animal was thus made comfortable. The irrigating fluid was kept at body temperature, and external heat was applied to the dog. A third tube was left in the stomach itself in order to wash out any excessive gastric secretion, and also for the early introduction of fluids and later food into the stomach.

This type of irrigation was tried in three series of dogs. First, with an ordinary gastro-enterostomy; second, with a gastro-enterostomy and a pyloric occlusion, and third and most important, in a series of dogs prepared according to the second method but with a rubber band placed on the proximal loop near the gastro-enterostomy opening. In this manner a positive obstruction was produced with the duodenum forming a closed loop.

We were confronted with many technical difficulties in our early experiments, both in the most adequate method of producing a temporary obstruction and in devising an efficient type of continuous irrigation. In our earlier work in the control animals without irrigation, death occurred in the first twenty-four hours. The contents of the obstructed proximal loop were highly toxic, as from 0.5 to 1 c.c. of the Berkefeld filtrate was sufficient to kill a normal guinea-pig in from twelve to twenty-four hours after intraperitoneal injection. The bacteriologic cultures showed only the constant presence of *B. coli* and some gram-positive cocci. All our animals were examined post mortem, so that all elements of the experiment were considered. Carbon dioxid determinations by the Van Slyke method were made on the last few dogs. The other components of the blood and the urinary chlorids were not studied in this first series of animals. We will describe one of the last operations in great detail, as it illustrates the essential factors concerned with duodenal obstruction.

The operative procedures on Dog 17, indicated in the accompanying sketch, were as follows: A midline incision from the xiphoid process to the umbilicus gave exposure to the stomach and duodenum. The stomach was divided at the pyloric ring. The opened duodenum and stomach were closed with linen sutures, and the blind ends inverted with a continuous Lembert suture. Three pieces of rubber tubing, measuring 3 mm. in diameter and about 50 cm. in length, were fastened together with thread. One of these pieces, which was to be used for stomach drainage, was cut off to the length of 30 cm. Several perforations were made in this gastrostomy tube in the distal 6 cm. The tubes that were to be used for duodenal irrigation were so perforated that the fluid was required to course through the entire duodenum before the tube connected with the suction apparatus could withdraw the irrigating solution. These three tubes, one for the stomach and the other two for duodenal irrigation, were embedded in the stomach near the lesser curvature and cardiac end by means of a Witzel gastrostomy. After a trough had been made by this procedure, the three tubes were introduced into the stomach through a small opening, and this opening was closed. A posterior antecolic gastro-enterostomy was then performed by the following method: The jejunum, about 10 cm. from the duodenojejunal flexure, was approximated to the stomach on its posterior wall with a continuous serosal suture. Openings were made in the stomach and jejunum, and a posterior layer of sutures were inserted, approximating the jejunal and gastric walls. At this stage the two rubber tubes that were to be used for duodenal irrigation were withdrawn from the stomach through the gastro-enterostomy stoma and inserted into the proximal loop toward the duodenum, so that one reached up to the blind end of the duodenal stump while the other was near the gastro-enterostomy opening. After this the anterior wall of the gastro-entero-anastomosis was sutured with two layers of continuous silk. Thin rubber, about 2 cm. in width and 6 cm. in length, was pushed through the mesentery of the jejunum proximal to the gastro-enterostomy, and the two ends were sutured together so as to produce an occlusion of the lumen without seriously interfering with the blood supply of this part of the intestine. A stab wound was made to the left of the median line, and the portion of the stomach including the gastrostomy was pulled through this opening and fastened very


Rectal drip for duodenal irrigation
To water suction pump
Abdom wall
1
2
Blind end of stomach
Closed end of duod
2
Stoma
3
Constricting band
1
3
Bottle containing gastric washings
Bottle containing duodenal washings

Operative procedures, apparatus and method for irrigation of the closed loop, and the location of the rubber band producing temporary obstruction at the duodenojejunal flexure.

carefully to the peritoneum. The abdomen was then closed and the dog put into a special frame, which held him erect. Irrigation by means of apparatus shown in the sketch was then started by the use of a rectal drip, warm physiologic sodium chlorid solution being used. This drip was attached to one of the tubes, which had its perforations at its terminal end and permitted the fluid to escape only at the most distant portions of the duodenum. Suction was applied to the other duodenal tube, which had its perforations a short distance beyond the occlusion.

This irrigation was carried on continuously for twenty-four hours and also for a short time after the occlusion had been removed. The gastrostomy tube was used as a method for washing and irrigating the omach when necessary, and also for supplying fluids d drugs, which will be described later. At the end of twenty-four hours, a linear incision was made under local anesthesia to the left of the midline. The rubber band occluding the jejunum was removed and the abdomen closed. The animal received further duodenal irrigation for a period of four hours and was then permitted to rest.

The carbon dioxid combining power of the blood was determined at several intervals during the twenty-four hour period of occlusion and subsequently. The accompanying table indicates the amount of irrigation and the reaction of the dog during the first thirty-six hours.

As noted in the table, the duodenal loop was irrigated with 8,000 c.c. of physiologic sodium chlorid solution, and 7,930 c.c. of solution was returned. By this method we were able to produce a very efficient irrigation, which undoubtedly removed the toxic products formed in the lumen of the obstructed duodenum. The dog showed muscular twitchings shortly after the operation. These became exaggerated, and finally, twenty-five hours after the operation, the dog developed severe generalized convulsions and did not respond to external stimuli. Even the corneal reflex was absent. The carbon dioxid combining power at this time showed 100, or almost twice normal.

After the administration of 120 c.c. of 0.3 per cent. hydrochloric acid, the dog underwent a remarkable change, first regaining consciousness, later reacting to external stimuli, and finally seeming quite well. A second carbon dioxid combining power taken one-half hour after the administration of acid showed it to be 73, or a decrease of one fourth. The duodenum was then irrigated during the next seven hours with 2,100 c.c. of salt solution, but only 1,700 c.c. was returned. Evidently the 400 c.c. had passed on by way of the now free duodenal loop. The remainder of the day 0.3 per cent. hydrochloric acid was given, as was indicated, and the carbon dioxid combining power was reduced to 66 and a few hours later it was 56. The general condition of the dog constantly improved, and after forty-eight hours the dog was free from twitchings and tetany, and walked about and acted normally. It has remained in good condition since then and has shown no further tendency to alkalosis.

Results of Irrigation in High Intestinal Obstruction

Time	Injected through Duodenal Tube	Withdrawn by Means of Duodenal Tube	Given through Gastrostomy Tube	Rectal Feedings	Carbon Dioxid Combining Power	Comment
5/26/25, 9:30 p.m. to 6 a.m.	2,400 c.c. 0.9% NaCl	2,180 c.c.	⅔ gm. potassium bromid	....	...	Dog shows mild muscular twitching
5/27/25, 6 a.m. to 12 noon	3,000 c.c.	3,080 c.c.	....	90 c.c. 5% glucose	...	Muscular twitching more marked
12 to 6 p.m.	2,200 c.c.	2,300 c.c.	....	90 c.c. 5% glucose	...	Muscular twitching almost continuous
6 to 7 p.m.	100 c.c.	450 c.c.	....	20 c.c. 5% glucose	...	Obstruction removed under local anesthesia and irrigation discontinued for 3 hours
7 to 10 p.m.	....	....	....	....	...	No irrigation
10:25 p.m.	....	....	....	....	100	Dog in convulsions; slight response to external stimuli; corneal reflex absent
10:25 to 10:30	....	....	120 c.c. 0.3% hydrochloric acid	No further rectal feedings	...	Dog revived very shortly afterward and seemed to improve rapidly
11 p.m.	....	....	....	....	73	Very much better
5/28/25, 12 to 2:30 a.m.	1,200 c.c.	1,060 c.c.	....	....	...	Dog much better; twitching still present
2:30 to 5 a.m.	....	....	....	....	...	Dog sleeping
5 a.m. to 7 a.m.	900 c.c.	640 c.c.	....	....	...	Twitching less; *no further irrigation; vomited once*
9:20	....	....	20 c.c. 0.3% hydrochloric acid			
10:25	....	....	20 c.c. 0.3% hydrochloric acid			
10:45	....	....	20 c.c. 0.3% hydrochloric acid	....	66	Dog quieter; few muscular twitchings
From 11:15 to 2:15	....	....	50 c.c. 0.3% hydrochloric acid per hour			
2:15	....	....	....	....	56	
2:45	....	....	40 c.c. 0.3% hydrochloric acid	....	...	No further evidence of tetany

Milk and glucose given every half hour by gastrostomy; small quantities of water given by mouth.

CONCLUSIONS

1. Experimental duodenal obstruction is associated with alkalosis, tetany and death, as noted by previous workers.

2. Continuous adequate and thorough drainage of obstructed intestinal loops can best be carried out by the use of two tubes.

3. Such irrigation of the obstructed duodenojejunal loop has a favorable action, and when accompanied by control of alkalosis relieves the symptoms and prevents death.

Duty of County Health Department.—The primary duty of the county health department is to interest and educate the people of the county in matters pertaining to the cause and prevention of communicable diseases and the possibilities for community health promotion.—Parran, Thomas, Jr.: *Pub. Health Rep.* **40**:987 (May 15) 1925.

THE USE OF ALCOHOL IN MEDICAL PRACTICE *

ROGER I. LEE, M.D.
BOSTON

It is an old saying that alcohol is a highly inflammable substance whether you apply a match or a word to it. Nevertheless, from time to time some of us with more courage than caution may well venture to express our views concerning the place of alcohol in therapeutics. Certainly it is to be expected that there will be some differences of opinion. Complete agreement means cessation of inquiry, and mental and scientific stagnation.

The difficulties with regard to a reasonable evaluation of the therapeutic place of alcohol are obvious. There are few of us, indeed, that did not have prejudices with regard to alcohol before we entered the therapeutic field. Then, too, the statistical data with regard to alcohol, whether clinical, experimental, sociological or economic, have been subjected to partisan and emotional interpretation.

In this brief paper there will be no discussion of the sociological or economic aspects. Furthermore, there will be no attempt to transfer the results of valuable laboratory experiments with alcohol on animals to human beings. However fundamentally important much of that work is, the process of transfer often gives an unintentional twist. It seems to me that there are adequate clinical data on therapeutic effects of alcohol. I shall furthermore limit the scope of this paper to my own personal observation and personal experiences in the use of alcohol. It is certain that my own observations will not precisely coincide with those of other internists, and it is certain also that my interpretations will be somewhat different from those of other men. Inevitably some of the opinions will seem didactic; inevitably some opinions will seem to be based on insufficient data.

I use the term alcohol as the presumably potent pharmacologic agent that occurs as ethyl alcohol in varying percentages in the usual wines and liquors. I assume that we are dealing with relatively pure ethyl alcohol. Unquestionably, the form of alcohol has a distinct effect on the organs of taste and smell, and the form and dilution have a definite effect on the ease of toleration by the stomach. While these are important in medical practice, I purposely exclude them from the present discussion.

Historically, alcohol has had its greatest vogue in therapeutics in the treatment of acute infections. The old accounts of the days of vigorous therapeutics which preceded the present day of relative therapeutic nihilism make weird reading nowadays. In the good old days of bleeding and purging, the amount of alcohol prescribed was indeed colossal. The older clinicians of today still maintain that the moderate use of alcohol is perhaps the only therapeutic agent to be saved out of the chaos of the excessive therapeutics of acute infections.

With the better understanding of the processes of immunity, it is hardly seriously claimed nowadays that alcohol has any direct antagonistic action on pathogenic micro-organisms or their products. In favor of the continuation of the use of alcohol in acute infections are urged certain clinical observations: (1) the observation that in infections a large amount of alcohol may be consumed without obvious alcoholic intoxication; (2) the use of alcohol as a food; (3) the stimulating effect of alcohol; (4) the general beneficial effect of alcohol. The observation that in acute infections alcohol is often tolerated in large amounts without obvious intoxication needs very little comment. This may or may not be related to the use of alcohol as a food. In any event, the absence of alcoholic intoxication after the use of alcohol does not seem to be a direct argument for the use of alcohol.

It is well known that under special circumstances alcohol can be used as a food. Careful clinical studies, particularly careful metabolism studies, indicate that the total amount of alcohol that can be utilized as a food is very small, and that the utilization of alcohol as a food demands rather special conditions. Although the administration of an adequate number of calories is desirable at all times, nevertheless there is ordinarily very little urgency concerning the calories in the acute infections. Furthermore, the few additional calories that alcohol can supply seem relatively unimportant. Clinical experience points clearly to the urgency of providing an adequate fluid intake in acute infections. Fluids must always be available for the tissues, particularly in the acute infections. There is a possibility that occasionally in desperate cases of acute infections the ingestion of alcohol may facilitate the retention of fluids and thus combat an anhydremia. On this point at the present time there are inadequate data to form a definite opinion. My own views are that alcohol is of no real clinical value as a food in acute infections, although I still withhold an opinion in regard to the possible beneficial rôle of alcohol in assisting in the retention of the needed fluids.

Clinical, laboratory and experimental observations fail to disclose the value of alcohol as a stimulant, as measured by any precise test or by any method capable of expressing actual measurement. I hasten to add that a stimulating effect may not necessarily be expressed in terms of blood pressure readings, pulse rate and the like. However, I myself have not been able to discover clinically any stimulating effect, in the particular or general sense of stimulation, in acute infections from the use of alcohol.

The possible general beneficial effects of alcohol in acute infections is confessedly hard to determine. It is important, if it can be done, to substitute precise for general terms. Of course, in the present state of medicine, it sometimes happens that the patient feels better and is clinically better, although there may be no alteration in any available record. Nevertheless, on analysis I believe that it is possible to express in reasonably precise terms wherein alcohol has a beneficial effect not alone in the acute infections but also in general therapeutics.

The single beneficial effect of alcohol in acute infections is in my experience psychologic rather than somatic, and is best illustrated by enlarging the scope of the discussion. The excuse for the prominence of the discussion of the effect of alcohol in the acute infections is that medical tradition has given alcohol such a conspicuous place in the treatment of acute infections. I believe that there is a field of usefulness of alcohol which is amply substantiated by clinical experience and, as it happens, amply substantiated pharmacologically. The usual immediate effect of alcohol in human beings is the creation of the state of artificial euphoria. Some of us have experienced this sensation ourselves; all of us as physicians and as citizens have frequently witnessed this

---

* Read before the Section on Pharmacology and Therapeutics at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

state. We do not need the abundant existent data to prove the existence of this phenomenon. Our concern at this time, however, is with persons who are under our medical care because they are sick. The issue, plainly stated, is this: Can alcoholic euphoria be utilized in the practice of medicine just as the pharmacologic action of any drug can be used? Furthermore, do the immediate benefits outweigh the possible deletorious effects, both immediate and remote? I believe that alcohol, properly administered in selected cases in which a mild artificial euphoria is desirable, is a valuable therapeutic procedure in making the patient more comfortable. I regard the exhibition of alcohol as one of the milder refinements of medical care of certain types of patients. It helps them over a difficult period. An elderly patient, for example, is convalescent from a mild upper respiratory infection, whether we call it a cold, the grip, influenza, ronchitis or bronchial pneumonia. In the convalescence, the weight of years hangs heavily on the patient. He is conscious of many mild functional disturbances; he is depressed and miserable in mind and body; he is without appetite, and has a sense of prostration and weakness. To be sure, much can be done for this patient by careful nursing, tonics and the various so-called volatile stimulants. Nevertheless, the exhibition of alcohol in some agreeable form eases the miseries of his body, encourages him to eat, and helps in the establishment of recovery. I have grave doubts as to the actual large benefit of alcohol or of any of the other warmly recommended remedies. I feel certain that in most cases the patient is better off without alcohol. However, there is the very occasional case in which, in the convalescence from acute infections, alcohol certainly seems to be of some slight benefit as indicated.

Not only in the convalescence from infections, but also during the acute stage of some infections does alcohol at times seem of value. In my experience, its value is always in the creation of the state of euphoria. It is my opinion that the beneficial effects of alcohol seen in the treatment of mild infections, as a cold, just as in the convalescent period, are due to this pharmacologic action of alcohol. As an upper respiratory infection is self limited, one may well expect enthusiastic testimonials from any more or less agreeable method of treatment. Most physicians have their own special form of treatment that they recommend for the treatment of colds, and alcohol is simply one of a group.

There are occasional cases in the early stage of pulmonary tuberculosis when the little fever, the distress of body and the consciousness of this dread malady make life appear drab, and the judicious administration of alcohol in small amounts seems to alter the gloomy outlook on life and to make endurable the rigors of the necessary regimen.

The occasional cardiac patient with a large heart that no longer responds satisfactorily to digitalis and that hovers between compensation and decompensation with a variable amount of precordial distress and with a variable amount of dyspnea, often finds more comfort from alcohol judiciously given in moderate doses than from opiates, which are better reserved for a future period.

In the sometimes inevitable discomforts of old age, as well as in the more sharply definite ailments of arteriosclerosis, alcohol occupies a high place in my regard. Of course, alcohol does not in the slightest remedy the underlying condition. Its use is entirely directed against the symptoms of the sensation of ill being. It may even be true that alcohol even in small doses may somewhat accelerate a progressive condition. However, if alcohol will enable the patient to eat more and to sleep better, not to mention to give freedom from bodily miseries, it would seem likely that the progressing process in such cases is generally not accelerated by the use of alcohol. Illustrative cases might be multiplied; alone, no single illustrative case would be in the slightest convincing. Taken together, the result has been to convince me of the limited value of alcohol to one particular purpose; namely, the creation of euphoria.

We have better drugs for anesthesia or the full state of intoxication that large doses of alcohol may bring. However, it sometimes happens that definite moderate intoxication with alcohol seems to be of some therapeutic value. I refer particularly to the type of case illustrated by a relatively feeble old man who had undergone prostectomy in a two stage operation. He finally drifted into a stage of physical inertia, in which he refused to take nourishment or talk, and took no interest in life. Despite the usual resources on the part of the surgeon and internist, it was evident that he was going to die unless something changed in the immediate future. The liberal administration of alcohol in such a case, as contrasted with the moderate use of alcohol in the earlier cases, is occasionally accompanied by a somewhat sudden readjustment and recovery.

I have attempted to point out some of the indications for the use of alcohol. It may be argued that even if there are benefits, the possible detriments far outweigh the benefits. In the first place, I believe that it cannot be too strongly emphasized that alcohol and work are completely incompatible. Generally speaking, I believe that physicians are not justified in prescribing alcohol for patients who are actually doing full work.

Again, it may be argued that alcohol is notoriously a habit-forming drug. So are many other drugs. One must assume some intelligent discretion on the part of the physicians. Furthermore, if the general contraindication of work is accepted, I believe that this argument against alcohol may be disregarded.

Political fashions and even laws do not alter scientific and clinical facts with regard to the use of alcohol in medical practice. Of course, as law-abiding citizens we physicians must conform to the law. The law now provides the machinery for the prescription of alcohol. The physician therefore will or will not prescribe alcohol in accordance with his interpretation of the purely medical indications for its use.

SUMMARY

I have attempted in a feeble way to express my own views with regard to the clinical use of alcohol. In my opinion, alcohol is of no benefit as a *stimulant in the* acute infections. It is possible that alcohol may have some indirect beneficial effect on the metabolism, particularly with regard to fluids; but that does not seem to have been demonstrated clinically as yet. It is only in very exceptional cases that alcohol has any direct value as a food. Alcohol is beneficial in a wide variety of conditions on account of its pharmacologic effect in the production of euphoria. Its benefit is probably never directly life saving. In order to produce this effect, small doses of alcohol are probably sufficient. Alcohol should not be employed as routine and should be employed only in individual cases in which the indications for its use are clear. When the purpose of the administration of the drug is kept in mind, there would be no more objection to the use of alcohol than to the use of opium or its derivatives. It is a habit-forming drug, like opium and its derivatives, but the difficulties in the formation of habit are easily avoided when the treatment is individualized and the drug is administered on clear indications. There seems to be some evidence that in occasional cases the administration of alcohol to the state of mild but obvious intoxication may be beneficial. However, the ordinary indication for the use of alcohol is the creation of mild euphoria.

270 Commonwealth Avenue.

ABSTRACT OF DISCUSSION

Dr. Albert E. Roussel, Philadelphia: Doubtless there always will be variances of opinion with regard to the use of alcohol in acute disease. After long experience in hospitals and private work, I regard alcohol as useful in certain types of infection and in particular cases. In convalescence from acute diseases and in many chronic diseases, I consider the use of alcohol of great value. The way it is given to the patient is important. In one discussion it was recommended that we use alcohol undiluted. I will ask any of you, even in good health, who have tasted alcohol to bear me out as to how well it can be borne by sensitive stomachs. The French, with their wines are prone to know more about the different classes of wines than we are, and certain it is that when strychnin and bitter tonics are often without immediate result in the production of an appetite and in improvement of digestion, a good Burgundy wine will effect the results we are seeking to obtain. I approve of this in hospital and other work in connection with relative blood and hemoglobin counts, presumably because the proper wine not only produced the feeling that is part and parcel of the process, but it produced an appetite. Nobody who is unable to take the proper food is going to increase red blood corpuscles. I believe that alcohol is of use in acute infections and of greater use in convalescence from acute infections and chronic diseases.

Dr. Roger I. Lee, Boston: It is well known that it is possible to change a positive Wassermann reaction to a negative one, provided the individual is sufficiently alcoholized. In an arbitrary fashion, I simply included all of these suggestions under the general caption that I myself was not familiar with the clinical utilization of alcohol for any of these purposes. I am very glad that Dr. Roussel brought out the point which I could not bring out in my paper, which I merely mentioned; namely, that the form of alcohol is important. As for the rest of Dr. Roussel's discussion, I dare say that he and I may be in agreement or it is possible that it is a case of which I warned in my paper as to where clinicians must agree to disagree.

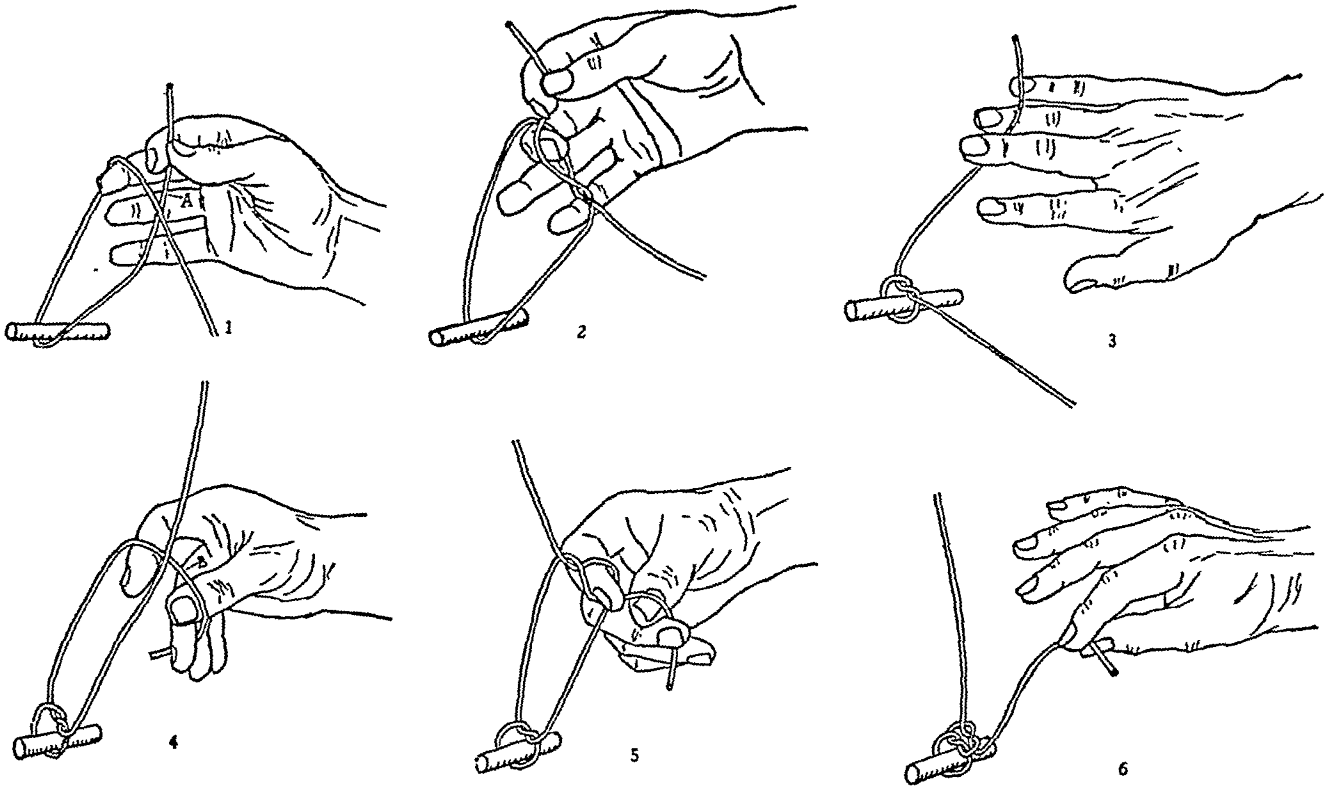
Clinical Notes, Suggestions, and New Instruments

METHOD OF TYING A SQUARE KNOT

F. G. Meynen, M.D., Jamaica, N. Y.

The method presented here of tying a square knot will be found to excel all ordinary methods and most, if not all, of the "trick" ones for the following reasons:

1. It is rapid.
2. It cannot fail to tie "square."
3. Only one hand (the right) is directly used.



Steps in tying the knot.

4. At no time is it necessary to drop either end of the suture—each maneuver leading naturally into the succeeding one without rearranging the grasp.
5. It is adaptable to all purposes and positions.
6. It is simple and easy when the knack is acquired.

It is essential to remember that the long end (if there is a choice) should always be grasped by the left hand. In the drawings, for the sake of simplicity, the long end is left free without indicating the left hand.

Assuming that the long end comes out of the wound on the far side from the surgeon about to tie the knot (as is the case, for example, when the first knot in a continuous suture is tied by an assistant for the operator), it is grasped by the left hand, while the short end is grasped about 1 inch from the end between the thumb and index finger of the right hand with the palm down. The palm is immediately turned upward with the suture lying across the fingers and the longer end brought into the position shown in Figure 1. The middle finger is then hooked under the portion of the suture marked *A*, as in

Figure 2; this is drawn through the loop by grasping it between the middle and ring fingers, and first single knot drawn tight as in Figure 3. The same firm grasp being kept with the middle and ring fingers, the palm is turned somewhat upward, the thumb and first finger being placed under the suture and the long end in the position shown in Figure 4. The tip of the index finger is then hooked under the portion marked *B*, as in Figure 5, drawing it through the loop and grasping it between the thumb and index finger as soon as it is through, and the knot is drawn tight and completed as in Figure 6. Should a third knot be desired, the hand will be found in a position ready to repeat the first maneuver from Figures 1 to 3.

Should the surgeon be desirous of tying his own suture (in which case the short end will come out on the far side of the wound and the long end on the near), he has only to begin with the maneuvers depicted in Figures 3 to 6 and end with Figures 1 to 3.

This method is particularly suitable and rapid for ligating vessels with a long ligature wound around the fingers of the left hand. It must be remembered, however, to begin with Figure 1 when the long end comes up on the far side of the clamp, and with Figures 3 to 6 and then Figures 1 to 3 when the long end comes up on the near side of the clamp. This decision will come instinctively with practice.

The knot can be tied easily in two seconds.

BLOOD SUGAR IN RELATION TO INSULIN REACTIONS*

Genevieve Stearns, M.S., Iowa City

Diabetic children usually show symptoms of insulin shock when the blood sugar reaches a value of from 0.050 to 0.040 per cent. Recently, however, we have observed two children whose venous blood sugars reached much lower values without any apparent signs of shock. The blood sugar was determined in all cases by the method of Folin and Wu,[1] with the exception that dilutions to 6 or 12.5 c.c. were used when the sugar content was very low. Pfanstiehl's chemically pure special glucose was used in making the standards.

M. B., a girl, aged 4 years, showed on two occasions blood sugar values of 0.036 and 0.042 per cent., respectively, without any noticeable evidence of shock. With typical beginning insulin reaction—i. e., the child fully conscious, though drowsy, flushed, and perspiring freely, and unable to walk alone—the blood sugar was 0.025 per cent.

Similar observations were noted in the case of R. K., a girl aged 11 years. On three occasions in which drowsiness was the only apparent symptom of insulin reaction, the blood sugar values were 0.030, 0.033 and 0.034 per cent., respectively.

In view of these findings, we have found that occasional determinations of blood sugar from three to four hours after insulin are of value, as the child may have a very low blood sugar, even though he may appear normal.

---

* From the Department of Pediatrics, State University of Iowa College of Medicine.

[1] Folin, O., and Wu, H.: J. Biol. Chem. 38:81 (May) 1919.

Effects of Vaccination at University of California.—There has been no case of smallpox among the student body of the University of California at Berkeley since 1907, when the regents adopted the rule that all entrants must possess satisfactory evidence of immunity to smallpox before they can be admitted. In the State of California for the year ending Dec. 31, 1924, there were reported 9,424 cases of smallpox. As this makes a case rate of 2.41 per thousand population, our pro rata expectation of smallpox cases among the student population, calculated on 10,000 individuals, would be twenty-four cases for that year—if vaccination were not enforced. There were three cases of smallpox among unvaccinated employees, two of whom were janitors, and one was a stenographer. Students who came in contact with these individuals and with others during an epidemic, in our city in 1913, when five afflicted persons out of thirteen cases died, were absolutely protected. It is therefore needless to offer any arguments save the one that compulsory vaccination should be required of all entrants on matriculation.—Legge, R. T.: *Pub. Health Rep.* **40**:1037 (May 22) 1925.

Special Article

THE OLD TIME COUNTRY DOCTOR

In the innumerable descriptions of and references to the country doctor of earlier days, seldom is one found that indicates an accurate conception of him. On the one hand, he is idealized by those who knew his virtues and loved him and described as a man whose superhuman benevolence was equaled only by his subhuman practicality; on the other, he is given little credit for more than good intentions by some of those who did not know him and cannot see how he could have been of much use. It has been my experience to know intimately one successful country doctor, and a sketch of such a man, as uncolored by romance as possible, would seem to be historically worth while.

The period of his practice was from 1861 to 1889. The time was in years not so long ago, but the period was a past period, one that ended with his generation. It was just before bacteriology revolutionized the practice of medicine and surgery, and before the telephone and the motor car changed the conditions of rural practice. The place was a rural county in the Middle South—a land of red clay hills seamed by fertile valleys, with a population of native born Americans, most of them rather poor, some of them prosperous, with their intelligence varying in the same proportion as their material prosperity, but by no means always in accordance with it.

Let us call him Dr. X. His parents were moderately well educated, well-to-do country people, who were able to give their children a little more than an elementary education. X had an elementary education in the local private schools; it was before the days of public schools. This was supplemented by a further training in an academy in a nearby town, the sort of institution that took the place in his day of the later high school. His education went to the point of some Latin and mathematics up to trigonometry. He was at school until he was about 17. Between 17 and 22 he worked at more or less hard labor with a view to getting some money ahead to study medicine, and he accumulated $1,500. With this he went to Jefferson Medical College, which at that time was to his section of the country the great medical school. There he graduated in 1860.

After his graduation, he began the practice of medicine in the county seat of his county. He had had no hospital training, but he evidently had acquired somewhere a considerable amount of clinical training, for without any later training of this sort he handled his patients *secundum artem* for his day, and did the surgery of the times with assurance and according to established method. Either Jefferson then gave a considerable amount of practical training to its students, or he had gotten this training in the art of medicine from his preceptors, one of them an older brother, another a rather famous doctor in his county. He spent a year or two in establishing a practice and was soon busy, doing all he possibly could do. So he remained for the rest of his life.

My memory of him begins about 1875, and I remember no important changes in the manner of his practice, or of his life, after that time. His work consisted of everything in medicine. He treated every human ailment that affected his people, and every accident. By the time that my memory of him becomes vivid, he had become the consultant for a large district. He did not accept his responsibilities lightly. Rather, he was distinctly conscious of the responsibilities he accepted, but he did not hesitate to take all sorts of professional responsibility. When he got a puzzling case or a case that was distinctly a specialist's case, such as disease of the eye, in some one who could pay, he sent him off to the city for service or had consultation at home. But he did not seek consultations often, and for the most part he accepted the complete responsibility himself. Of course, that meant, in a large general practice, that he was carrying heavy responsibilities all the time.

It goes without saying that much of his practice was crude in the light of our present knowledge. But as far as I can appraise the condition of medical knowledge at that time, he intelligently lived up to his situation. In the first place, being himself naturally an extraordinarily clean person, he had his patients kept clean as far as possible, and he tried to keep them comfortable. He saw that the bed linen was clean and that the beds were easy. In prolonged illnesses he watched the backs of his patients, for he held that a bedsore, except with a spinal injury, was inexcusable. He bathed his patients when they had fever. He indulged in no meddlesome manipulations of his patients and no extravagant or heroic therapeutics.

All the knowledge that he had of pathology was that of the gross pathology that he got from his textbooks. But he usually had an intelligent idea of the things that were causing the trouble in his cases, and he tried to meet them as an intelligent man would. He gave his patients medicines, but as a rule not in active doses. He gave quinin vigorously in malaria and he did not hesitate to give opium freely for the relief of pain, if he gave it at all. I have heard him express his views on this point and I have a very vivid illustration of it in my mind. One night, when I was a medical student, I went with him to see a man who was bleeding from a dreadful epithelioma, which filled the orbit. The man was suffering intensely and asked for a dose of morphin. I proposed to give the hypodermic for X, but he said, "No, give him the morphin bottle and let him take his own dose; he knows what he needs." (I think X had never seen the man as a patient before.) The patient took the morphin bottle, poured out into his palm about a teaspoonful of morphin sulphate and, to my amazement that X did not interfere, swallowed it down with some water. When we left the house I voiced my anxiety about the amount of morphin the man had taken and X said, "If he has any morphin he should have enough to stop his pain, and people in his condition who have been taking morphin know how much they need." Nothing came of this teaspoonful of morphin except a grateful sleep. But X was careful not to give morphin to patients indiscriminately, and guarded against the danger of their becoming addicts.

X used the same mixtures for digestive disturbances, the same cough mixtures, the same tonics that we do now; and he used about as we do today such useful remedies as chloral hydrate, bromids, bismuth, and mercury and the iodids in syphilis. But in part his therapeutics amounted to placebos. He used aconite in fevers, in minute doses, belladonna to dry up coughs, and other favorite remedies, but he used them in such small doses that they never produced—with the possible exception of belladonna—any physiologic effect. I do not know whether he realized this or not, but I suspect that he did, because his inclinations all lay in the direction of giving nature a chance and of avoiding overinterference in disease. He did not use cathartics much, and more than once expressed to me the mistake of allowing a habit to become established that made cathartics necessary.

He tried to make a diagnosis in his medical cases, and I think he was fairly successful in this respect. I recall an immense amount of sickness which I saw with him and in which his diagnoses, I think, were sharp and definite. As a good illustration of his diagnostic acumen, I recall a group of cases of Friedreich's ataxia that he had recognized. His physical diagnosis consisted of inspection, palpation, auscultation and percussion. He worked out his lung lesions and his heart lesions, but he did not accurately differentiate the lesions in the heart.

Obstetric work was, of course, a large part of his practice, and I remember that he liked this practice. He got his first inkling of the bacteriology of suppuration in the early eighties, and up to the end of his life he never had more than the crudest ideas of aseptic technic. But he was inherently clean and his obstetric practice had few accidents. I recall only one case of fatal puerperal sepsis in his practice during the years when such an accident would have impressed itself on my memory. He did obstetric manipulations with assurance and success. I have seen him successfully handle a breach presentation of a hydrocephalic child, and after the body was delivered put the forceps on the after-coming head and deliver the child without serious damage to the woman. He looked after torn perineums and took pride in not having many of them.

His favorite practice was surgery. He did all sorts of surgery of the day. I know of two patients with carcinoma of the breast in whom he amputated the breast and who lived for many years. I have assisted him in a successful operation for the reduction of a strangulated inguinal hernia. The surgical feat of his practice as far as I know was the extirpation of the parotid gland for a large malignant tumor, probably a mixed tumor of the parotid. He successfully removed all of this tumor, and the man survived for many years without recurrence. Before the operation, he warned him of the facial palsy that occurred. He had many railroad injuries to treat, most of them crushing injuries, some of them severe burns and, occasionally, a gunshot wound. Of course, awful suppuration occurred in these injuries, but he never hesitated to go after pus and drain it away if possible. My impression is that he handled these cases with excellent judgment and skill. I have seen him take care of a number of extensive burns. He quieted the patients with morphin, cleaned away the pus from the surface and, after petrolatum came in, he dressed the burns with a copious layer of petrolatum under gauze. I have heard him express his dislike for carron oil, because it was mussy and interfered with keeping the surface clean. He did all sorts of amputations, always making long flaps and being particular to furnish a proper protection for the end of the bone. After he learned to use mercuric chlorid solution, he often had an amputation without infection. For the most part, however, his amputations became infected, but he always got at the pus and provided for good drainage, so that the wounds healed in a few weeks with good stumps.

In reducing dislocations, he had one cardinal principle: to produce relaxation of the patient with anesthesia.

That done, he used the classic manipulations and I never saw him fail to reduce a dislocation, although I have been with him on a number of occasions when he was called as a last resort. As far back as my memory goes with him he treated all fractures with plaster-of-Paris dressings. He had two principles that he constantly followed in putting up a fracture: The first was to get as good a reduction as possible, to get the limb in natural position; then—his major principle—was to fix firmly by his plaster dressing the joint above and the joint below the fracture. This done, he felt that the fracture would stay in place, and, so far as his results showed, it did. He treated fractures of the forearm with plaster dressings, and all fractures of the femur in the same way. He had previously used extension splints in fractures of the femur, but gave them up for plaster. With a fractured hip he would put a strong man pulling on the ankle of the patient, keep up the pulling until the muscles had relaxed and the leg was in full extension and, then, while the pulling was kept up until the plaster fixed, he would put on a plaster-of-Paris dressing from the toes nearly up to the navel. He was impressed with the importance of a strong spica around the body. I have reverted in memory to his fracture work more than to any other part of it because I think the results were as good as those that I have seen since.

Of course, all his surgical work was done wherever the injured patient happened to be. There was no hospital. I have given chloroform while he amputated a leg on a railroad station table, with the station agent holding a kerosene lamp. I remember that I have seen him ligate the radial artery under similar conditions for an uncontrollable hemorrhage from a cut in the palm.

All his surgery was done under chloroform, and, according to modern teaching, he was utterly careless in its administration. He would pour it on a towel and let anybody give it; but it was on a flat towel, not a cone, and the patient always got plenty of air. He would give chloroform to pull a tooth or to lance a boil. He never had an accident from chloroform and, as a matter of fact, he never had any fear of an accident until I warned him of the danger. Then I had two or three scares in giving chloroform for him, but he did not have any. After cocain came in he used it freely for minor operations, but with some caution.

His technical equipment was what he had acquired from his medical schools and his preceptors (I have the impression that much of the art he had gotten from his preceptors) and what he had learned by his own efforts. He was a thoughtful man who would grow through his own experience, and he became a man of sound clinical judgment. He was eager to get knowledge of new useful procedures, and for this purpose he utilized those with whom he came in contact, whether consultants or other colleagues who had had later experience. Illustrations of this were seen in the way he appropriated plaster-of-Paris dressings in his fracture work, in the use of cocain and in the efforts at antisepsis, as soon as they were brought to his attention. But he never left home for any formal postgraduate work, nor was he an attendant at medical societies away from his home. The only time that I knew him to go to a medical society meeting was at a time when S. D. Gross was scheduled to give an oration; and he went to see Gross, one of his old teachers. Gross, incidentally, was the only person for whom he had an extravagant admiration. X, however, organized a county medical society which was almost exclusively a clinical society, and this society met for years, until his death, always in his office. He was much interested in it and he would let nothing keep him away from it.

X was in no way cultured in the sophisticated sense; he was not a great reader, but he read both general literature and medical literature with discrimination. When he read medicine, he read for the most part the standard medical texts. I have heard him express his disrespect for most of the magazine literature of medicine that came to his hand and the opinion that doctors would do better to read the same subjects in the textbooks; particularly, that the best thing that they could do was to read up their cases in these books.

I remember once going with him to see a negro woman with a large uterine myoma that had protruded out beyond the vulva for several days. He ligated it and cut it off and the woman got well. As we were driving away he said to me: "The other doctors who have seen the case might just as well have known what to do in the case if they had taken the trouble to read up the subject in the textbooks."

In a quiet way, X was rather punctilious about his medical ethics. He was the almost universal consultant for a wide district and he not only never took advantage of his colleagues in his consultations, but he was technically as well as actually very considerate of them. All I ever learned about the etiquette of the consultation I learned from him. He would not tolerate professional irregularities. He would have nothing to do with an advertising doctor or with an irregular practitioner, and he was impatient with those who were careless of their medical decorum. On the other hand, I have heard him speak rather slightingly of the necessity for the code of ethics and express the opinion that all there was to the code of ethics was for the doctor to act like a gentleman.

He had no office hours and he did not pretend to meet people's convenience. At least, there was no apparent effort on this score. He was not inconsiderate of their convenience, but he apparently expected them to assume that he would get to them when he could and that, if they wanted to see him in the office, they would have to wait and find him there. He was apparently always unhurried even when going to emergencies. I once asked him why he did not hurry more, and he said he did not want to get there all worn out.

His office work was no part of his labor. His laborious work was done in going about to his patients and in taking care of their serious troubles where they lay. He availed himself of every means he could to make his traveling easier; he always had plenty of good horses, for he wanted to drive a fresh horse. A tired horse, he said, made the trip as hard for the driver as for the horse. In his early days he rode horseback a good deal, but from the time that I remember him he drove about in a piano box buggy. This buggy was always in perfect physical order and had always been washed in the morning before he started out. Notwithstanding the buggy, he always carried in a wooden box the classic doctor's saddle bags in which he had his medicines and a small roll of instruments. A patient once gave him a handsome small medicine chest. He had it filled with his medicines in order to show his appreciation, but he never used it.

He was the surgeon for the two railroads that crossed at his town, and they extended to him every courtesy that they could. They would stop fast trains for him at small villages, and gave him the privilege of riding on freight trains and of using a railroad tricycle on their tracks. He would take a man and this tricycle on one of the trains and go to his destination and have the man pull him back home. I remember that on one occasion he was trying to get his tricycle on a passenger train and the baggagemaster said he could not take it on. The conductor said, "Never mind, doctor, we will hold this train until he does take it on." One of his characteristics was that he would not take a railroad pass. His reason for this was that he did not want to be paid for his railroad surgery in passes; he preferred to charge regularly and to pay his fare.

His attitude toward the practice of medicine was the attitude of a practical man of sense engaged in practical affairs. And in this particular he differed most from the country doctor of romance. He was a genuinely kindly person; he would have been good to the deserving whether he had been a physician or not, but he was no mooning sentimentalist in medicine and no impractical altruist. He was not the unreal figure of the country doctor whose greatest satisfaction lay in wearing himself out for the benefit of the undeserving. He was a charitable person with all deserving enterprises in his community, not only with his time but with his money, and I think any one in the community would have said that he was generous of his services beyond his strength. Yet, as I say, my impression of him is not that of the family doctor of tradition—the Dr. McClures. Of course, his practice was in large part among poor people, many of whom could pay little. He had an admiration that amounted to affection for many striving men whose lot was hard. On the other hand, he had an antipathy for the man, poor or rich, who did not try to meet his obligations, and such people he did not willingly serve. In fact, he made rather a hard and fast distinction between the worthy and the unworthy, the useful and the useless in the world. He had little sympathy for the unworthy and a rather remarkably strong attitude that the useless, whether rich or poor, were litter on the earth. He did not actually refuse to serve these classes, but he did it with no particular zest. On the contrary, I have known him to spend many anxious periods over the illness or injury of those he respected. His premature death, in fact, was probably due to his attendance, when ill himself, on some serious cases among poor people, but people for whom he had always had friendship and admiration.

Under his leadership, the doctors of the county saw to it that they were paid by the county for taking care of the sick of the poorhouse, and I have more than once known him to get an order from the county judge which assured the payment by the county for some laborious pauper service before he undertook it. I do not believe that he ever sued any one for the collection of a bill and he did not send out bills, but he kept accurate books and he saw to it, as a rule, that his accounts were paid sooner or later. In short, he attended to the business side of medicine, which was a necessary side if he was to be just to himself and his family, as a practical man of sense. I would not give the impression that he was a cold, sharp business man. He was quite the opposite—a man in whom sentiment was a dominating motive; but I emphasize the practical business qualities of this man because I am trying to describe a real country doctor, not the imaginary one of any one's dreams.

What about the characteristics of the man himself? It goes without saying that he was a man of intelligence and good judgment; that was the key to his being a successful physician, as it will always be the key to being a successful physician. He was not a man of brilliant parts, but he was a sound, sane man of stable temperament. He had two outstanding qualities which I think were distinctly unusual. These were his poise and his personality. I have heard his father-in-law, an exceedingly wise old man, say repeatedly that he was the best balanced man he ever knew. He did not fail in any of the qualities of a man. And he had absolute control over his temper, as I have never seen it in any one else. I do not know whether "personality" is the proper word with which to express his other dominant characteristic, for this was shown only by his influence on those around him. This he had to a remarkable degree. A word, a suggestion, an opinion from him usually carried with it conclusive influence with those who looked to him. Perhaps one reason for this was that he was not copious in his advice. As for any ostentatious personality, in the ordinary sense that the temperamental use that word, he had none of it.

He met people easily, but he did not have a strong social instinct. He was reticent in company, but an exceedingly interesting talker with a single person to whom he was responsive. His manners and habits were those of a quiet, unostentatious gentleman. There was nothing of the officious, pretentious doctor about him. He had no mannerisms and no affectations. And he had no pompous medical dignity.

But he did have certain canons of his own as regards professional deportment. Under no circumstances would he mingle purposeless with a crowd of loafers, nor would he sit around the drugstore with them or have them in his office. He was as far as possible from a hail-fellow-well-met. And he would not go without a coat. I remonstrated with him one hot day about wearing his coat. His retort was that gentlemen did not go around in their shirt sleeves.

His dress was that of a man who bought good clothes but who was indifferent except about neatness. When he was in his winter clothes going out in the mud he might have on an overcoat spattered with red clay, a pair of arctic overshoes and a pair of old cloth leggings that reached up to the middle of the thigh and were tied in place with black tape. Then he looked the roughest person in the world and he did not care. When he took these off he was a spare built, ascetic looking man, dressed in the clean clothes of a gentleman and with linen that was always immaculate.

What were the advantages and disadvantages of such a life as X led?

It was in its labor and in its responsibilities a hard life; when demands on him were very heavy, as they often were, he would work long hours, practically to the point of exhaustion. Its chief hardship lay in these long hours and in the night work in time of stress and in the frequent interference with sleep. It also meant long rides and exposure in all sorts of weather These, I think, except when they were excessive, were hardly to be classed as hardships. X got much pleasure out of his driving; most of the time he carried with him a companion, usually a child or some young person, never a man, unless a servant. I have heard him express his objection to men companions on his drives because they would insist on talking business to him. I have heard him say that it seemed to him that he got more pleasure from driving through the country than could possibly be hoped for by any one who had so much of that experience. As to various sorts of weather, the weather was, like day and night, all the same to him. When it was time for him to begin a trip he started immediately—was impatient of delay, in fact—whether it was day or night, just before meal time, and regardless of storms. In winter he protected himself with warm wraps; in summer with linen clothes he bore the heat as best he could.

The compensations were, broadly, those of every successful, useful life. X would, doubtless, have said that his compensations were of two sorts: First, the material prosperity which enabled him to take excellent care of his family; second, the satisfaction that came from the feeling of usefulness to his community and from the knowledge of its esteem. He spent no time in self congratulation over the position he held in his community; but like a man of sense, he knew it and undoubtedly had satisfaction in it.

What sort of medical service did such a man give his people? For 90 per cent. of the ills of life, he gave them useful service. He watched them through their illnesses with care and good clinical judgment; he quieted their pain and relieved many of their other distressing symptoms; he bathed their fevers; in all sorts of intelligent ways, he gave their illnesses a chance to get well. He cured their fractures and dislocations and took about as good care as then could be done of their other injuries. The resources of modern surgery and those that come from our new knowledge of infectious diseases were not his to use, but, barring these, I think that in most ways he gave his patients about as good service as we can give them now. As I look back over his practice, I have no doubt of the value that he was to his people.

The best evidence of the usefulness of such a man lies in the esteem in which men like him were held in their communities. There is no place where one is submitted to more merciless scrutiny than in a small town. With all due respect for our popular prejudices about Main Street, I know no place where one is likely to be judged more justly from his works; and men like X have always been appraised as of the highest value in these communities. It is hard to convey to one who has not seen it the position of such a man. He is looked to for counsel, support, direction in all sorts of difficulties and crises, whether they are medical or not. He has a community influence that every one realizes. As to his own conduct he is much of a law unto himself. It is assumed that he will not do anything without justification and he can practically do as he pleases. I have no doubt that if X had committed a serious crime he would have been brought to justice, but he would have been brought to book for nothing less. The petty laws that were made for the sake of order and convenience in the community, for example, did not apply to him. He was as much privileged in breaking them as a fire engine is in breaking the traffic regulations. It is not true that he was loved by everybody, for he was a man of positive character and would have been the first one to suspect himself if every one had loved him; but he had the respect of everybody in his community and the deep affection of a large part of it.

It may be said, of course, that X was not the ordinary type of country doctor. As was said in the beginning, he was a successful country doctor. He was the outstanding medical man in his community, the sort of man who would have been a success anywhere, but as a successful country doctor I believe he was not extraordinary or unusual. Indeed, I have been surprised at the frequency with which I have learned of other country doctors who have occupied the same sort of place that he held. I have undertaken to ascertain, as accurately as possible, the positions in their communities and the characteristics of some of these practitioners and I have been impressed by the way in which they were exemplified in X: he was a good example, but he represented a type.

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

VACCINE VIRUS (See New and Nonofficial Remedies, 1925, p. 341).

E. R. Squibb & Sons, New York.

Smallpox (Variola) Vaccine (Glycerinated) (See New and Nonofficial Remedies, 1925, p. 342).—Also marketed in packages of one tube.

TETANUS ANTITOXIN CONCENTRATED (See New and Nonofficial Remedies, 1925, p. 332).

Eli Lilly & Co., Indianapolis, Ind.

Tetanus Antitoxin (See New and Nonofficial Remedies, 1925, p. 333).—Also marketed in syringes containing 10,000 units.

E. R. Squibb & Sons, New York.

Tetanus Antitoxin Purified (See New and Nonofficial Remedies, 1925, p. 333).—Also marketed in packages of 20,000 units.

NOVARSENOBENZOL-BILLON (See New and Nonofficial Remedies, 1925, p. 50).

The following forms have been accepted:

Novarsenobenzol-Billon 0.15 Gm. Ampules.
Novarsenobenzol-Billon 0.3 Gm. Ampules.
Novarsenobenzol-Billon 0.45 Gm. Ampules.
Novarsenobenzol-Billon 0.75 Gm. Ampules.

ANTI-ANTHRAX SERUM (See New and Nonofficial Remedies, 1925, p. 336).

Lederle Antitoxin Laboratories, New York.

Anti-Anthrax Serum (See New and Nonofficial Remedies, 1925, p. 336).—Also marketed in packages of one 20 Cc. vial.

TUBERCULIN-KOCH (See New and Nonofficial Remedies, 1925, p. 345).

Lederle Antitoxin Laboratories, New York.

Tuberculin Pirquet Test ("T. O.") (See New and Nonofficial Remedies, 1925, p. 347).—Also marketed in packages containing ten capillary tubes and in packages containing twenty-five capillary tubes.

ANTIRABIC VACCINE (See New and Nonofficial Remedies, 1925, p. 342).

Eli Lilly & Co., Indianapolis.

Pasteur Antirabic Preventive Treatment (Harris Modification) (See New and Nonofficial Remedies, 1925, p. 343).—Supplied in emulsion in syringe, ready for use. A package containing the first seven doses is sent out from the nearby Lilly depot; a second package containing the last seven doses is sent out from the home office after an appropriate interval.

Antidysentric Serum in Mild Cases.—From the viewpoint of the clinician, antidysenteric serum may not be indicated in the milder types of bacillary dysentery. Usually, the patients seem to do well on salines. The microscopic study of these cases leads me strongly to the belief, however, that serum should be given in every case of bacillary dysentery—no matter how mild—provided the physical condition of the patient exhibits no contraindications to its administration. By that, I do not mean massive doses, but moderate doses of, say, 20 c.c. This almost immediately arrests the bacillary process in the mild cases.—Haughwout, F. G.: The Practical Microscopic Diagnosis of Dysentery, Manila, Bureau of Printing, 1924.

MEDICAL EDUCATION IN THE UNITED STATES

ANNUAL PRESENTATION OF EDUCATIONAL DATA FOR 1925 BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

The statistics herewith presented for the year ending June 30, 1925, are based on reports received from the medical colleges and other reliable sources. We acknowledge here the kind courtesy and cooperation of the officers of the colleges who have made the compilation of these statistics possible.

STATISTICS OF COLLEGES

Table 1, on pages 586, 587, gives the colleges in session during 1924-1925; the population of the city; the rating given to the college by the Council on Medical Education and Hospitals; the number of students, men and women, registered during the year; the number of 1925 graduates, men and women; the number of graduates holding collegiate degrees; the number of teachers for each college; the number of weeks of actual work in the college year; the total fees for each year; the executive officer of the college, and the dates of beginning and ending of the next session. The figures in heavy-faced type show the totals by states. Beginning on page 600 are given the essential facts concerning all medical colleges arranged by states.

HOME STATES OF MEDICAL STUDENTS

Table 2, on pages 588, 589, shows from what states the students came who were in attendance at each medical college during the session of 1924-1925. The influence of the proximity of the medical school is seen in the fact that states having medical colleges contribute larger numbers of students than those which have no colleges. This is shown by the dark zone of figures running diagonally down the page. It will be interesting to compare this table with the large tables based on state board examinations,[1] which show the distribution of the alumni of each college. The college that has a widely distributed alumni usually has a student body from an equally large number of states.

The state furnishing the largest number of students this year was New York, with 2,576 Pennsylvania contributed 1,409 and Illinois, 1,274 The next states, in the order of the number of students contributed, are: Ohio, 1,057; Massachusetts and Texas, each 645; Michigan, 641, and California, 610. Of the twelve states which have no medical schools, three furnished more than 100 students, these being New Jersey, 528; Washington, 152, and Florida, 104. Of these noncollege states, Nevada and Wyoming had 10 students each. There were 139 students from Hawaii, Porto Rico and the Philippine Islands. There were 275 students from foreign countries, as compared with 302 in 1924, 368 in 1923 and 314 in 1922.

NUMBER OF STUDENTS BY CLASSES

In Table 3, on page 590, the students enrolled in each college are shown by classes. This permits one to see whether the attendance at each college is increasing or decreasing. The total attendance for the first year was 5,492, or 332 more than last year, and 330 more than in 1923. The second year attendance was 4,415, or 26 less than last year and 200 less than in 1923. The third year attendance was 4,136, or 194 less than last year but 275 more than in 1923. The enrolment of the fourth year class was 4,157, or 360 more than last year and 835 more than in 1923.

NUMBER OF MEDICAL STUDENTS

The total number of medical students (Table 4) in the United States for the year ending June 30, 1925, excluding premedical, special and postgraduate students, was 18,200, an increase of 472 over last year. This is the largest enrolment of students since 1912.

TABLE 4—*Medical College Attendance*

Year	Non sectarian	Homeo pathic	Eclectic	Physio-Med.	Nondescript	Total
1880	9,776	1,220	830	..	..	11,826
1890	13,521	1,164	719	...	..	15,404
1900	22,710	1,909	522			25,171
1904	23,662	1,309	1,014	123	234	28,142
1910	20,136	867	455	49	19	21,526
1911	18,414	890	433	49	...	19,786
1912	17,277	827	308		..	18,412
1913	15,919	850	256	..	...	17,015
1914	15,438	794	270		...	16,502
1915	13,914	736	241	.	...	14,891
1916	13,121	638	263		.	14,012
1917	12,925	580	250	...	..	13,764
1918	12,727	540	138		225	13,630
1919	12,137	397	86		310	12,930
1920	12,930	386	93	..	389	13,798
1921	13,627	440	98	.	301	14,466
1922	14,742	517	85	...	291	15,635
1923	16,299	341	99	..	221	16,960
1924	17,034	379	127	..	188	17,728
1925	17,652	410	148	.	.	18,200

Enrolments in certain previous years are given for comparison. There has been a steady increase in enrolment since 1919. Of the total number of students last year, 17,652 were in the nonsectarian (regular) colleges, 410 at the two remaining homeopathic colleges and 148 at the one remaining eclectic college. The three nondescript[2] colleges reported neither students nor graduates for the session ending in 1925

NUMBER OF MEDICAL GRADUATES

The total number of graduates (see Table 5) for the year ending June 30, 1925, was 3,974, or 412 more

(Continued on page 590)

---

[1] State Board Number, J. A. M. A. 84: 1339-1359 (May 2) 1925.

[2] Two of the nondescript colleges, the Middlesex College of Medicine and Surgery and the Kansas City College of Medicine and Surgery, together with one regular college graded in Class C, the St Louis College of Physicians and Surgeons, were involved in the Connecticut illegal license scandal, according to drastic reports regarding them which were issued by the Connecticut Special Grand Jury on March 14, 1924 These reports were published in the THE JOURNAL, Vol 82 (1924) on March 29, page 1067; April 12, page 1219, and April 5, on page 1140, respectively.

TABLE 1.—STATISTICS OF MEDICAL COLLEGES IN THE UNITED STATES AND CANADA

Marginal Number	NAME AND LOCATION OF COLLEGE	Population of City Where College Is Located (Census Bureau Estimate of 1920)	Classification by Council on Medical Education	No. of Students Registered 1924-25		Graduates 1925		Grads. with A.B., B.S., or Ph.B.	Number of Teachers	Weeks in College Year	Total Fees (Dollars)				Executive Officer	Session of 1925-26		Marginal Number
				Men	Women	Men	Women				1st Year	2d Year	3d Year	4th Year		Begins 1925	Ends 1926	
	ALABAMA			84	2	..	..	..										
1	University of Alabama School of Medicine, University (Tuscaloosa)*	11,996	A	84	2	..	..	..	12	35	260	260	...	...	Clyde Brooks, M.D., Dean	Sept. 9	May 25	1
	ARKANSAS			132	1	23	..	6										
2	University of Arkansas Medical Department, Little Rock [1]	65,142	A	132	1	23	..	6	71	35	80	85	70	95	Morgan Smith, M.D., Dean	Sept. 17	June 3	2
	CALIFORNIA			548	80	129	15	130										
3	College of Medical Evangelists, Los Angeles	576,673	A	225	25	64	3	63	161	36	221	263	258	255	Percy T. Magan, M.D., Dean	Sept. 6	May 30	3
4	Stanford University School of Medicine, San Francisco	506,676	A	149	20	24	4	28	165	34	261	261	261	261	William Ophuls, M.D., Dean	Oct. 1	June 16	4
5	University of California Medical School, San Francisco [1]	506,676	A	174	35	41	8	39	226	36	290	248	235	225	L. S. Schmitt, M.D., Dean	Aug. 14	May 12	5
	COLORADO			134	14	27	3	8										
6	University of Colorado School of Medicine, Denver [1]	256,491	A	134	14	27	3	8	73	34	206	221	191	181	Maurice H. Rees, M.D., Dean	Sept. 28	June 14	6
	CONNECTICUT			181	5	42	3	40										
7	Yale University School of Medicine, New Haven	162,537	A	181	5	42	3	40	139	34	305	300	300	320	Milton C. Winternitz, M.D., Dean	Oct. 1	June 16	7
	DISTRICT OF COLUMBIA			715	14	155	5	87										
8	Georgetown University School of Medicine, Washington	437,571	A	229	..	42	..	23	101	34	215	200	200	210	George M. Kober, M.D., Dean	Sept. 24	June 9	8
9	George Washington University Medical School, Washington	437,571	A	243	10	42	4	21	153	34	295	292	292	292	William C. Borden, M.D., Dean	Sept. 23	June 9	9
10	Howard University School of Medicine, Washington	437,571	A	243	4	71	1	43	56	34	163	158	158	165	Edward A. Balloch, M.D., Dean	Oct. 1	June 11	10
	GEORGIA			343	4	85	..	43										
11	Emory University School of Medicine, Atlanta	200,616	A	217	..	60	..	37	127	33	253	233	228	253	Russell H. Oppenheimer, M.D., Dean	Sept. 29	June 8	11
12	University of Georgia Medical Department, Augusta [1]	52,548	A	136	4	25	..	11	61	34	115	60	60	60	William H. Goodrich, M.D., Dean	Sept. 14	May 31	12
	ILLINOIS			1767	110	372	16	321										
13	Chicago Medical School, Chicago	2,701,705	C	120	9	0	0	28	75	42	250	275	300	325	William T. Carlisle, M.D., Dean	Oct. 5	Aug. 21	13
14	Loyola University School of Medicine, Chicago	2,701,705	A	317	12	52	3	23	113	33	300	300	300	300	Louis D. Moorhead, M.D., Dean	Oct. 1	June 9	14
15	Northwestern University Medical School, Chicago	2,701,705	A	428	..	105	..	60	188	34	244	244	245	260	Irving S. Cutter, M.D., Dean	Sept. 29	June 12	15
16	Rush Medical College (University of Chicago)	2,701,705	A	467	64	122	11	130	284	34	280	270	270	290	Ernest E. Irons, M.D., Dean	Oct. 1	June 16	16
17	University of Illinois College of Medicine, Chicago [1]	2,701,705	A	435	25	93	2	80	213	33	165	165	165	165	Albert C. Eycleshymer, M.D., Dean	Oct. 5	June 12	17
	INDIANA			362	17	80	8	86										
18	Indiana University School of Medicine, Bloomington-Indianapolis [1]	314,194	A	362	17	80	8	86	266	36	175	175	175	175	Charles P. Emerson, M.D., Dean	Sept. 14	June 9	18
	IOWA			401	10	74	2	55										
19	State University of Iowa College of Medicine, Iowa City [1]	11,267	A	401	10	74	2	55	97	34	186	186	186	186	Leo Wallace Dean, M.D., Dean	Sept. 21	June 5	19
	KANSAS			155	10	32	..	22										
20	University of Kansas School of Medicine, Lawrence-Kansas City [1]	101,177	A	155	10	32	..	22	113	36	125	100	106	110	Harry Roswell Wahl, M.D., Acting Dean	Sept. 10	June 8	20
	KENTUCKY			271	5	61	2	24										
21	University of Louisville School of Medicine, Louisville	234,891	A	271	5	61	2	24	109	36	260	260	270	290	Stuart Graves, M.D., Dean	Sept. 14	June 17	21
	LOUISANA			373	10	85	2	48										
22	Tulane University of Louisiana School of Medicine, New Orleans	387,219	A	373	10	85	2	48	142	34	245	235	220	250	Charles C. Bass, M.D., Dean	Sept. 24	June 9	22
	MARYLAND			603	45	150	11	105										
23	Johns Hopkins University Medical Department, Baltimore	733,826	A	255	39	68	10	78	237	33	310	310	310	317	Lewis Hill Weed, M.D., Dean	Sept. 28	June 8	23
24	Univ. of Maryland School of Med and Coll of P. & S., Baltimore [1]	733,826	A	348	6	82	1	27	205	33	270	260	260	270	J. M. H. Rowland, M.D., Dean	Sept. 28	June 5	24
	MASSACHUSETTS			1164	48	270	14	140										
25	Boston University School of Medicine, Boston	748,060	A	188	22	39	11	19	114	35	306	306	306	316	Alexander S. Begg, M.D., Dean	Sept. 21	June 14	25
26	College of Physicians and Surgeons, Boston [2]	748,060	C	20	..	4	..	..	..	..	125	155	125	115	....	....	....	26
27	Harvard University Medical School, Boston	748,060	A	506	..	126	..	108	322	36	305	300	300	300	David L. Edsall, M.D., Dean	Sept. 28	June 24	27
28	Tufts College Medical School, Boston	748,060	A	450	26	101	3	13	161	34	305	300	300	310	Stephen Rushmore, M.D., Dean	Sept. 16	May 29	28
29	Middlesex College of Medicine and Surgery, Cambridge.—N.[3]	109,694	C	...	..	..	..	..	..	..	175	175	175	175	....	....	....	29
	MICHIGAN			708	33	176	9	83										
30	University of Michigan Medical School, Ann Arbor [1,4]	19,516	A	503	30	150	8	80	155	35	190	180	180	190	Hugh Cabot, M.D., Dean	Sept. 22	June 14	30
31	Detroit College of Medicine and Surgery, Detroit [1]	993,678	A	205	3	26	1	3	129	35	175	175	175	175	W. H. MacCraken, M.D., Dean	Oct. 1	June 19	31
	MINNESOTA			394	31	97	8	104										
32	University of Minnesota Medical School, Minneapolis [1]	380,582	A	394	31	97	8	104	282	34	189	189	189	189	Elias P. Lyon, M.D., Dean	Sept. 28	June 12	32
	MISSISSIPPI			64	..	..	..	..										
33	University of Mississippi School of Medicine, University (Oxford)* [1]	2,150	A	64	..	..	..	..	17	34	163	163	...	...	Joseph O. Crider, M.D., Dean	Sept. 16	June 1	33
	MISSOURI			856	13	178	1	129										
34	University of Missouri School of Medicine, Columbia* [1]	10,392	A	76	4	..	..	..	28	35	125	113	...	...	Guy L. Noyes, M.D., Dean	Sept. 16	June 5	34
35	Kansas City College of Medicine and Surgery, Kansas City.N.[3]	433,261	C	...	..	..	..	..	..	..	200	200	200	200	....	....	....	35
36	Kansas City University of Physicians and Surgeons, Kansas City.N.[3]	433,261	C	...	..	..	..	..	..	..	200	200	200	205	....	....	....	36
37	St. Louis College of Physicians and Surgeons, St. Louis [5]	772,897	C	34	1	10	..	..	..	..	210	205	205	230	....	....	....	37
38	St. Louis University School of Medicine, St. Louis	772,897	A	463	..	94	..	82	249	32	320	320	320	320	Hanau W. Loeb, M.D., Dean	Oct. 1	June 1	38
39	Washington University School of Medicine, St. Louis	772,897	A	283	8	74	1	47	167	34	317	312	312	317	McKim Marriott, M.D., Dean	Sept. 24	June 10	39
	NEBRASKA			486	19	136	4	109										
40	Creighton University College of Medicine, Omaha	191,601	A	169	2	36	1	35	78	33	195	190	190	200	Hermann von W. Schulte, M.D., Dean	Sept. 24	June 3	40
41	University of Nebraska College of Medicine, Omaha	191,601	A	317	17	100	3	74	111	34	180	170	160	160	J. Jay Keegan, M.D., Dean	Sept. 21	June 5	41

	NEW HAMPSHIRE			39	..	..	..	..										
42	Dartmouth Medical School, Hanover*	1,551	A	39	..	..	..	..	16	30	310	310	...	...	John M. Gile, M.D., Dean	Sept. 10	June 22	42
	NEW YORK			1097	161	449	42	279										
43	Albany Medical College, Albany	113,344	A	80	3	16	..	7	100	35	320	305	305	305	Thomas Ordway, M.D., Dean	Sept. 21	June 14	43
44	University of Buffalo Medical Department, Buffalo	506,775	A	221	17	46	5	35	150	34	327	317	317	327	C. Sumner Jones, M.D., Dean	Sept. 21	June 9	44
45	Columbia University College of Phys. and Surgs., New York City	5,620,048	A	349	48	82	11	80	313	33	332	332	332	352	William Darrach, M.D., Dean	Sept. 23	June 2	45
46	Cornell University Medical College, New York City	5,620,048	A	223	30	45	12	67	193	34	316	335	335	350	Walter L. Niles, M.D., Dean	Sept. 28	June 10	46
47	Long Island College Hospital, New York City-Brooklyn	5,620,048	A	380	8	96	1	25	102	35	360	350	375	380	Adam M. Miller, M.D., Dean	Sept. 21	June 8	47
48	New York Homeopathic Medical College and Flower Hospital.—H.	5,620,048	B	170	10	30	2	1	92	31	300	350	350	330	Israel S. Kleiner, Ph.D., Dean	Sept. 18	May 8	48
49	University and Bellevue Hospital Medical College, New York City	5,620,048	A	401	20	95	7	40	189	35	377	370	364	352	Samuel A. Brown, M.D., Dean	Sept. 16	June 9	49
50	University of Rochester School of Medicine, Rochester [6]	295,750	..	...	..	..	..	..	19	37	300	300	300	300	George H. Whipple, M.D., Dean	Sept. 17	June 21	50
51	Syracuse University College of Medicine, Syracuse	171,717	A	107	10	39	4	28	110	35	335	335	335	315	Herman G. Weiskotten, M.D., Dean	Sept. 21	June 11	51
	NORTH CAROLINA			124	2	..	..	..										
52	University of North Carolina School of Medicine, Chapel Hill *	1,183	A	75	2	..	..	..	13	35	195	195	...	...	I. H. Manning, M.D., Dean	Sept. 17	June 4	52
53	Wake Forest College School of Medicine, Wake Forest *	1,125	A	49	..	..	..	..	16	35	200	200	...	...	Thurman D. Kitchin, M.D., Dean	Sept. 15	June 4	53
	NORTH DAKOTA			43	1	..	..	..										
54	Univ. of North Dakota School of Med., University (Grand Forks)* [1]	11,010	A	43	1	..	..	..	15	36	60	60	...	...	H. E. French, M.D., Dean	Sept. 19	June 15	54
	OHIO			896	39	226	6	139										
55	Eclectic Medical College, Cincinnati.—E.	401,247	B	117	1	38	..	2	52	32	220	210	210	210	Rolla L. Thomas, M.D., Dean	Sept. 17	May 17	55
56	University of Cincinnati College of Medicine	401,247	A	236	17	62	3	48	205	35	320	320	320	320	Arthur C. Bachmeyer, M.D., Dean	Sept. 21	June 12	56
57	Western Reserve University School of Medicine, Cleveland	796,841	A	200	9	39	1	40	169	34	275	260	250	260	Carl A. Hamann, M.D., Dean	Oct. 1	June 17	57
58	Ohio State University College of Medicine, Columbus [1]	237,031	A	313	12	87	2	49	113	34	180	180	180	180	Eugene F. McCampbell, M.D., Dean	Sept. 29	June 15	58
	OKLAHOMA			158	12	28	1	28										
59	University of Oklahoma School of Medicine, Norman-Oklahoma City [1]	91,295	A	158	12	28	1	28	83	35	63	65	70	21	LeRoy Long, M.D., Dean	Sept. 17	June 8	59
	OREGON			198	12	41	4	21										
60	University of Oregon Medical School, Portland [1]	258,288	A	198	12	41	4	21	111	34	195	190	190	190	Richard B. Dillehunt, M.D., Dean	Sept. 29	June 11	60
	PENNSYLVANIA			1675	134	406	40	224										
61	Hahnemann Medical College and Hospital of Philadelphia.—H.	1,823,779	A	224	..	48	..	20	111	33	275	272	272	272	William A. Pearson, M.D., Dean	Sept. 29	June 4	61
62	Jefferson Medical College of Philadelphia	1,823,779	A	573	..	142	..	61	179	34	335	325	325	325	Ross V. Patterson, M.D., Dean	Sept. 23	June 4	62
63	Temple University School of Medicine, Philadelphia	1,823,779	B	211	6	41	4	7	131	36	230	225	215	215	Frank C. Hammond, M.D., Dean	Sept. 21	June 18	63
64	University of Pennsylvania School of Medicine, Philadelphia [4]	1,823,779	A	461	20	126	5	87	210	35	333	325	325	320	William Pepper, M.D., Dean	Sept. 25	June 16	64
65	Woman's Medical College of Pennsylvania, Philadelphia	1,823,779	A	...	91	..	30	17	69	35	400	400	400	450	Martha Tracy, M.D., Dean	Sept. 23	June 9	65
66	University of Pittsburgh School of Medicine, Pittsburgh	588,343	A	213	14	46	1	32	160	36	328	313	313	323	Raleigh R. Huggins, M.D., Dean	Sept. 21	June 9	66
	SOUTH CAROLINA			152	4	35	..	13										
67	Medical College of the State of South Carolina, Charleston	67,957	A	152	4	35	..	13	61	33	165	165	165	165	Robert Wilson, M.D., Dean	Sept. 21	June 3	67
	SOUTH DAKOTA			39	1	..	..	..										
68	University of South Dakota College of Medicine, Vermillion *	2,590	A	39	1	..	..	..	11	36	100	100	...	...	Christian P. Lommen, B.S., Dean	Sept. 16	June 12	68
	TENNESSEE			602	4	135	..	56										
69	University of Tennessee College of Medicine, Memphis [1]	162,351	A	216	3	58	..	23	152	33	107	102	102	127	James B. McElroy, M.D., Dean	Sept. 28	June 7	69
70	Meharry Medical College, Nashville	118,342	A	205	1	31	..	20	40	31	160	160	160	180	John J. Mullowney, M.D., President	Oct. 1	May 20	70
71	Vanderbilt University School of Medicine, Nashville	118,342	A	181	..	43	..	13	116	35	215	215	215	210	G. Canby Robinson, M.D., Dean	Sept. 23	June 9	71
	TEXAS			453	23	83	1	34										
72	Baylor University College of Medicine, Dallas	158,976	A	231	12	26	1	9	101	32	208	198	188	188	Walter H. Moursund, M.D., Dean	Sept. 28	May 31	72
73	University of Texas School of Medicine, Galveston [1]	44,255	A	222	11	57	..	25	46	32	198	173	175	173	William Keiller, M.D., Dean	Oct. 1	May 31	73
	UTAH			46	..	..	..	..										
74	University of Utah School of Medicine, Salt Lake City *	118,110	A	46	..	..	..	..	18	33	150	150	...	...	Ralph O. Porter, M.D., Dean	Sept. 27	June 5	74
	VERMONT			115	8	42	1	12										
75	University of Vermont College of Medicine, Burlington [1]	22,779	A	115	8	42	1	12	47	36	200	200	200	225	Henry Crain Tinkham, M.D., Dean	Sept. 16	June 18	75
	VIRGINIA			503	16	111	6	42										
76	Medical College of Virginia, Richmond	171,667	A	298	8	61	3	22	141	34	295	295	286	316	Manfred Call, M.D., Dean	Sept. 16	June 1	76
77	University of Virginia Department of Medicine, Charlottesville	10,688	A	205	8	50	3	20	46	36	255	255	205	195	James C. Flippin, M.D., Acting Dean	Sept. 17	June 15	77
	WEST VIRGINIA			109	2	..	..	..										
78	West Virginia University School of Medicine, Morgantown * [1]	12,127	A	109	2	..	..	..	16	35	95	95	...	...	John N. Simpson, M.D., Dean	Sept. 22	June 15	78
	WISCONSIN			390	20	42	..	38										
79	University of Wisconsin Medical School, Madison [1]	38,378	A	151	14	..	..	..	80	36	115	95	95	...	Charles R. Bardeen, M.D., Dean	Sept. 23	June 21	79
80	Marquette University School of Medicine, Milwaukee	457,147	A	239	6	42	..	38	118	31	318	303	303	283	Eben J. Carey, D.Sc., Dean	Sept. 28	June 9	80
	CANADA [7]			2421	115	446	27	126										
81	University of Alberta Faculty of Medicine, Edmonton, Alta.	58,821	..	110	8	10	1	2	81	30	182	182	182	182	Allan C. Rankin, M.D., Dean	Sept. 30	May 15	81
82	Dalhousie University Faculty of Medicine, Halifax, N. S.	58,372	..	156	8	11	2	3	59	33	200	200	200	200	John Stewart, M.D., Dean	Sept. 7	May 11	82
83	Queen's University Faculty of Medicine, Kingston, Ont.[8]	21,753	..	201	..	0	0	..	48	31	118	151	118	160	J. C. Connell, M.D., Dean	Sept. 30	May 19	83
84	University of Toronto Faculty of Medicine, Toronto, Ont.	521,893	..	707	67	127	13	19	200	32	163	163	163	163	Alexander Primrose, M.D., Dean	Sept. 29	May 30	84
85	University of Western Ontario Medical School, London, Ont.	60,959	..	98	1	21	..	5	72	33	155	163	163	183	Paul S. McKibben, Ph.D., Dean	Sept. 22	May 28	85
86	McGill University Faculty of Medicine, Montreal, Que.	618,506	..	402	18	96	1	15	158	29	232	232	232	232	Charles F. Martin, M.D., Dean	Sept. 21	April 28	86
87	University of Montreal Medical Faculty, Montreal, Que.	618,506	..	219	2	71	..	48	85	36	207	200	242	214	Louis de Lotbiniere Harwood, M.D., Dean	Sept. 15	June 15	87
88	Laval University Faculty of Medicine, Quebec, Que.	95,193	..	223	..	30	..	25	50	36	150	150	150	150	Arthur Vallée, M.D., Secretary	Sept. 5	June —	88
89	University of Manitoba Faculty of Medicine, Winnipeg, Man.	179,087	..	212	11	47	10	9	125	32	180	175	185	185	S. Willis Prowse, M.D., Dean	Sept. 28	May 29	89

E.—Eclectic; H.—Homeopathic; N.—Nondescript.

* Gives only the first two years of the medical course.

[1] The following universities make an additional charge for nonresidents: Arkansas, $100; California, $300; Colorado, $105; Georgia, $300; Illinois, $35; Indiana, $75; Iowa, $164; Kansas, $10; Maryland, $50; Michigan, $80; Detroit, $75; Minnesota, $30; Mississippi, $50; Missouri, $10; North Dakota, $50; Ohio, $105; Oklahoma, $137; Oregon, $60; Tennessee, $100; Texas, $150; Vermont, $100; West Virginia, $150; Wisconsin, $95.

[2] The number of students is approximate; the number of graduates exact.

[3] No students or graduates reported for the session of 1924-25.

[4] Two medical schools make a lower tuition charge for women than for men. The charge is $5 less each year at the University of Michigan and $15 less at the University of Pennsylvania.

[5] The number of students is exact; the number of graduates approximate.

[6] The Medical Department of the University of Rochester begins its first session Sept. 17, 1925. The freshman class will not exceed 25, men and women being admitted on equal terms.

[7] The population of Canadian cities, where medical colleges are located, was taken from the "Sixth Census of Canada, 1921."

[8] Queen's University Faculty of Medicine had no graduates this year owing to the change from the five to the six year medical course.

TABLE 2.—DISTRIBUTION OF

Marginal Number	NAME OF COLLEGE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Marginal Number
		Alabama........255	Arizona........18	Arkansas........122	California........610	Colorado........169	Connecticut........282	Delaware........26	Dist. of Columbia 194	Florida........104	Georgia........320	Idaho........34	Illinois........1,274	Indiana........511	Iowa........561	Kansas........269	Kentucky........271	Louisiana........177	Maine........78	Maryland........246	Massachusetts....645	
1	University of Alabama School of Medicine	69								2	3							2				1
2	University of Arkansas Medical Department			66	2		1				1			2	3	4	2	2			1	2
3	College of Medical Evangelists		3		67	7			12	2		2	6	3	4	5		1	1		1	3
4	Stanford University School of Medicine				143							4		1								4
5	University of California Medical School		1		203								1		1							5
6	University of Colorado School of Medicine			1	2	113						2	3	2	1	4				1	1	6
7	Yale University School of Medicine				5		91		1				1			1	1		6	1	5	7
8	Georgetown University School of Medicine						20	1	38										3	2	15	8
9	George Washington University Medical School				1		4	1	71			1	2			3				13		9
10	Howard University School of Medicine	3		4	4		4	1	35	7	5		8	1	2	3	9	7		13	3	10
11	Emory University School of Medicine	30			1				2	20	136						1	1				11
12	University of Georgia Medical Department									1	115						1	1			1	12
13	Chicago Medical School				1					2			79	2	2	1		3			2	13
14	Loyola University School of Medicine				1	1	2						201	7	12	2	1					14
15	Northwestern University Medical School	1	3		17	7	1		1		1	4	161	18	21	13	3	2	1		1	15
16	Rush Medical College (University of Chicago)	7		3	4	2	1			2	1	5	223	24	29	15	3		2	1	1	16
17	University of Illinois College of Medicine	2	3		6	1				1		1	378	6	3	2						17
18	Indiana University School of Medicine				2								7	331	1		7					18
19	State University of Iowa College of Medicine				1								7		361	2						19
20	University of Kansas School of Medicine		1		1								3			136						20
21	University of Louisville School of Medicine	5	1		5		1				1		4	24		4	142		1			21
22	Tulane University of Louisiana School of Medicine	49	2	12	5		3			20	8		2			2	5	131		1	1	22
23	Johns Hopkins University Medical Department	9		3	4	3	5	2	6	5	5	2	7	5	2	1	5		1	55	9	23
24	Univ. of Maryland Sch. of Med. and Coll. of P. & S.	1			1		9	2	2	1	1						2			120		24
25	Boston University School of Medicine				1		12							1					17	1	78	25
26	College of Physicians and Surgeons, Boston*																				20	26
27	Harvard University Medical School	6	1		30	3	17		2	1	5	1	13	8	6	4	5		16	3	133	27
28	Tufts College Medical School	1					44												15		310	28
29	Middlesex College of Medicine and Surgery.—N.†																					29
30	University of Michigan Medical School	1			7		1		1	1	1		2	23	4		3			1	3	30
31	Detroit College of Medicine and Surgery												2									31
32	University of Minnesota Medical School					1							2	1	4	1						32
33	University of Mississippi School of Medicine	1								1								5				33
34	University of Missouri School of Medicine	1											1		1							34
35	Kansas City College of Medicine and Surgery.—N.†																					35
36	Kansas City University of Physicians and Surg.—N.†																					36
37	St. Louis College of Physicians and Surgeons‡																					37
38	St. Louis University School of Medicine	3	1	1	29	3	1		1	2		1	60	8	18	18		4			5	38
39	Washington University School of Medicine	2		8	11	3			1		2	2	44	2	6	18	2					39
40	Creighton University College of Medicine				2	6						1	5	1	27	3						40
41	University of Nebraska College of Medicine			2	2	8						2	1		10	11						41
42	Dartmouth Medical School				1		2		1	1			1		1						8	42
43	Albany Medical College						1															43
44	University of Buffalo Medical Department						1								1						1	44
45	Columbia University College of Physicians and Surg.	2			3	2	11			1	2			2	2	1	1		1	1	6	45
46	Cornell University Medical College	1			6	1	5			2			2	4		1	2		1	1	7	46
47	Long Island College Hospital						5												1		2	47
48	New York Homeo. Med. Coll. and Flower Hosp.—H.			1																		48
49	University and Bellevue Hospital Medical College				1	1	8			3									1		1	49
50	Syracuse University College of Medicine						1														3	50
51	University of North Carolina School of Medicine						1			1												51
52	Wake Forest College School of Medicine						1															52
53	University of North Dakota School of Medicine				1																	53
54	Eclectic Medical College, Cincinnati.—E.		1								1		9	11	2	2	14			1		54
55	University of Cincinnati College of Medicine			1	4		1					1		7	2		26		1			55
56	Western Reserve University School of Medicine				1		1			1			1	2		2			2	1		56
57	Ohio State University College of Medicine				1									2						1		57
58	University of Oklahoma School of Medicine																					58
59	University of Oregon Medical School		1		9							2						1		1		59
60	Hahnemann Med. Coll. and Hosp. of Philadelphia.—H.				2	1	1	8	1	1			2	1	2		2				2	60
61	Jefferson Medical College of Philadelphia	5		1	3	1	11	6	3	5	3		4	5	3	2			1	9	5	61
62	Temple University School of Medicine	1			1		2	1	1	1										1	1	62
63	University of Pensylvania School of Medicine	6			6	2		3	1	1	3		3		5	1	1	1	2	5	4	63
64	Woman's Medical College of Pennsylvania			1	4		1		2		1				1					3		64
65	University of Pittsburgh School of Medicine												1		1		1					65
66	Medical College of the State of South Carolina										1						1					66
67	University of South Dakota College of Medicine												1		6						1	67
68	University of Tennessee College of Medicine	12		11		1			1	2	4		2	1		2	6	5		1		68
69	Meharry Medical College	10		3	1		1		9	10	15		8	2	1		2	3		1	3	69
70	Vanderbilt University School of Medicine	22		4			2			3	4		1	1	1	3	15	1				70
71	Baylor University College of Medicine	1			3								1		1	1		5				71
72	University of Texas School of Medicine																					72
73	University of Utah School of Medicine				1	2						3										73
74	University of Vermont College of Medicine				2		6												5		10	74
75	Medical College of Virginia								1	1							3			6		75
76	University of Virginia Department of Medicine	3					1	1	1	3	1						1	2		2	1	76
77	West Virginia University School of Medicine						1										1					77
78	University of Wisconsin Medical School				2		1						8	3	3	1	1					78
79	Marquette University School of Medicine	1											7		11		2					79
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	

E.—Eclectic; H.—Homeopathic; N.—Nondescript.

* Figures and distribution are approximate.

† No students reported for the session of 1924-25.

‡ Figures exact; distribution approximate.

Marginal Number	21 Michigan........641	22 Minnesota........523	23 Mississippi........146	24 Missouri........498	25 Montana........58	26 Nebraska........388	27 Nevada........10	28 New Hampshire....50	29 New Jersey........528	30 New Mexico........26	31 New York........2,576	32 North Carolina...355	33 North Dakota.....70	34 Ohio........1,067	35 Oklahoma........231	36 Oregon........200	37 Pennsylvania...1,109	38 Rhode Island......95	39 South Carolina...272	40 South Dakota.....97	41 Tennessee........265	42 Texas........615	43 Utah........118	44 Vermont........95	45 Virginia........443	46 Washington........152	47 West Virginia.....225	48 Wisconsin........477	49 Wyoming........10	50 Philippines, etc...130	51 Foreign........275	Totals........18,200	Marginal Number
1	....	....	3	....	....	....	....	....	....	....	1	....	....	2	....	....	....	....	....	....	1	....	....	....	3	....	....	....	....	....	....	86	1
2	2	....	....	3	....	1	....	....	2	....	20	....	....	1	2	....	....	1	....	....	1	3	....	....	....	....	....	1	....	2	....	133	2
3	10	9	....	2	1	10	1	1	3	....	3	1	3	3	5	7	6	....	1	3	10	3	....	3	2	15	....	1	....	4	20	250	3
4	....	....	....	1	....	....	5	....	....	....	....	....	....	....	....	2	....	....	....	....	....	....	1	....	....	4	....	....	1	3	4	109	4
5	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	....	209	5
6	1	3	....	1	....	1	....	....	....	....	....	....	....	3	1	....	....	1	....	....	1	1	....	....	....	1	1	....	1	....	2	148	6
7	....	....	....	....	....	....	....	1	5	....	26	3	....	8	1	1	6	1	1	....	....	....	1	2	....	1	1	1	....	....	5	186	7
8	....	1	....	....	2	....	....	....	22	....	60	2	....	3	....	....	28	12	....	1	....	1	....	....	5	....	1	....	....	2	....	229	8
9	....	1	1	1	....	....	....	....	26	....	68	5	....	3	....	....	13	....	1	1	1	1	7	....	13	1	5	1	....	8	....	253	9
10	5	....	3	1	....	....	....	....	9	....	22	16	....	4	2	....	9	1	7	....	1	7	....	....	25	....	4	....	....	....	22	247	10
11	....	....	1	1	....	....	....	....	....	....	1	7	....	1	....	....	1	....	4	....	2	....	....	....	4	....	....	....	....	1	3	217	11
12	....	....	....	1	....	....	....	....	2	....	3	2	....	....	....	....	....	....	6	....	....	....	....	....	2	....	....	1	....	4	....	140	12
13	8	....	....	....	....	....	....	....	1	....	6	1	....	6	....	2	1	....	....	....	1	1	....	....	....	....	....	....	....	2	13	129	13
14	17	6	....	2	1	3	....	....	1	17	3	....	2	7	....	2	12	....	....	....	....	3	....	....	....	2	3	....	....	13	8	329	14
15	14	19	3	10	5	7	....	....	....	1	7	....	10	9	4	4	7	....	1	6	....	2	4	....	1	15	....	26	....	5	13	428	15
16	17	5	1	12	6	8	1	....	2	1	5	1	7	19	5	6	9	....	....	8	2	7	6	1	1	9	2	48	....	3	16	531	16
17	8	4	....	3	1	....	....	....	2	....	4	1	3	2	....	....	2	1	....	2	....	....	2	....	....	....	2	16	....	3	6	400	17
18	4	2	....	1	....	....	....	....	1	....	6	....	....	5	1	....	4	....	....	....	....	1	....	....	....	....	1	1	....	3	1	379	18
19	....	13	....	2	....	2	....	....	1	1	6	....	....	....	....	....	1	....	....	6	....	2	....	....	....	....	....	2	....	2	2	411	19
20	....	....	....	21	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	....	165	20
21	1	6	....	5	....	....	....	....	1	....	11	....	1	23	5	2	....	....	....	2	4	2	6	....	1	2	11	2	....	1	2	276	21
22	2	....	28	1	....	1	....	....	3	1	13	13	1	....	7	....	3	....	4	....	9	49	....	....	....	....	....	....	1	1	5	383	22
23	8	....	2	5	....	....	....	....	8	....	24	7	1	9	2	2	26	4	10	....	3	17	2	1	17	3	4	8	....	2	5	294	23
24	....	....	....	....	....	....	....	1	40	....	67	22	....	7	....	....	33	4	3	....	....	....	....	1	5	....	17	....	....	6	3	354	24
25	3	....	....	....	....	1	....	2	3	....	63	....	....	1	....	1	2	7	....	....	....	....	1	....	....	1	1	....	....	8	6	210	25
26	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	20	26
27	5	5	1	6	....	5	1	5	10	....	57	4	1	19	7	10	27	16	3	3	3	9	3	6	8	6	5	8	1	1	17	506	27
28	....	....	....	....	....	....	....	18	6	....	47	....	....	1	....	....	1	23	....	....	....	1	....	2	....	1	....	....	....	3	3	476	28
29	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	...	29
30	307	3	....	3	5	3	....	1	11	1	34	3	1	57	2	2	19	3	....	2	....	1	1	2	2	5	2	2	....	2	11	523	30
31	197	....	....	....	....	....	....	....	....	....	1	....	....	4	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....	2	208	31
32	2	366	1	....	3	1	....	....	....	....	1	1	8	....	....	....	2	....	....	8	....	....	2	....	1	3	....	9	....	2	6	425	32
33	....	....	51	....	....	....	....	....	....	....	2	....	....	1	....	....	....	....	....	....	2	1	....	....	....	....	....	....	....	....	....	64	33
34	....	....	....	71	....	....	....	....	....	....	1	....	....	....	4	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	80	34
35	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	...	35
36	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	...	36
37	....	....	....	35	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	35	37
38	5	16	2	141	10	....	....	....	4	....	20	....	1	71	1	1	1	1	....	....	....	8	....	....	....	6	1	9	....	5	5	463	38
39	....	5	3	123	2	....	1	....	....	....	3	2	4	1	5	2	2	1	1	2	1	4	6	....	....	9	2	9	....	1	1	291	39
40	....	13	....	4	9	67	....	....	1	1	2	....	1	....	2	2	....	....	....	14	....	....	1	....	....	6	1	....	1	1	....	171	40
41	....	6	....	5	2	262	....	....	....	....	1	....	....	....	....	....	1	....	....	9	....	....	....	....	....	....	....	1	4	4	3	334	41
42	....	....	....	....	....	1	....	3	6	....	7	1	....	....	....	....	3	....	1	....	....	....	....	1	....	1	....	....	....	....	....	39	42
43	....	....	....	....	....	....	....	....	1	....	80	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	83	43
44	....	....	....	2	....	....	....	....	1	....	211	....	....	5	....	....	7	....	....	....	....	....	....	....	....	3	....	2	....	....	4	238	44
45	1	1	2	1	....	....	....	3	58	....	246	1	1	6	....	1	3	3	1	....	4	1	9	2	2	4	....	5	....	2	5	397	45
46	....	....	....	....	1	....	1	1	28	....	168	2	....	5	....	....	5	6	....	....	1	1	....	2	2	....	1	1	....	1	3	262	46
47	....	....	....	....	....	3	....	....	7	....	365	....	....	....	....	....	2	....	....	1	1	1	....	....	....	....	....	....	....	....	....	358	47
48	....	....	....	....	....	....	....	....	6	....	178	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	186	48
49	....	....	....	1	....	1	....	....	57	....	322	1	....	....	1	1	5	....	....	....	....	3	4	....	....	....	5	....	....	3	2	421	49
50	....	....	....	....	....	....	....	....	....	....	164	1	....	1	....	....	3	1	....	....	....	....	1	....	....	....	....	....	....	8	....	183	50
51	....	....	....	....	....	....	....	....	....	....	....	69	....	....	....	....	1	....	5	....	....	....	....	....	....	....	....	....	....	....	....	77	51
52	....	....	....	....	....	....	....	....	2	....	3	38	....	....	....	....	....	....	3	....	....	....	....	....	2	....	....	....	....	....	....	49	52
53	....	9	....	....	1	....	....	....	....	....	5	1	20	....	....	1	1	....	....	....	....	....	....	....	....	....	....	....	....	3	2	44	53
54	2	1	....	2	....	1	....	....	8	....	32	....	....	45	1	....	7	....	....	....	1	1	....	....	....	....	3	....	....	....	....	148	54
55	4	2	1	4	....	....	....	....	2	....	5	9	....	153	....	....	12	....	....	1	3	....	3	....	1	....	3	1	....	2	4	253	55
56	3	....	....	....	....	1	....	....	1	....	3	....	....	163	....	....	17	....	....	....	....	....	....	....	2	....	7	....	....	....	1	209	56
57	....	....	1	....	....	....	....	....	....	....	1	1	....	312	....	....	5	....	....	....	....	....	....	....	....	....	....	....	....	1	....	325	57
58	....	....	....	....	....	....	....	....	....	....	2	....	....	....	162	....	....	....	....	....	....	2	....	....	....	1	....	....	....	3	....	170	58
59	....	....	....	....	3	....	....	....	....	....	....	....	....	....	....	150	....	....	....	....	....	....	2	....	....	35	....	....	....	2	4	210	59
60	2	1	....	....	....	....	....	....	49	....	3	....	....	7	....	....	132	....	....	....	....	1	....	....	....	....	1	1	....	1	3	224	60
61	1	4	....	7	....	3	....	....	41	....	25	30	1	24	....	1	303	3	4	2	4	4	6	....	3	2	22	1	....	3	12	573	61
62	1	....	....	1	....	....	....	1	22	....	9	1	....	4	....	....	166	....	1	....	....	....	....	....	....	1	....	....	....	....	4	220	62
63	3	3	8	9	1	3	....	2	26	....	22	32	2	8	1	....	227	2	4	....	6	11	11	....	5	12	5	16	1	1	6	471	63
64	2	1	....	....	....	1	....	....	7	....	15	5	....	4	....	....	38	....	2	....	2	....	....	....	2	....	....	....	....	1	1	94	64
65	....	....	....	....	....	....	....	....	1	....	....	....	....	12	....	....	209	....	....	....	....	1	....	....	1	....	....	....	....	....	....	227	65
66	....	....	....	....	....	....	....	....	2	....	3	2	....	....	....	....	....	....	146	....	....	....	....	....	....	....	....	....	....	1	....	156	66
67	....	1	....	....	....	....	....	....	2	....	5	....	....	....	....	....	....	....	....	23	....	....	....	....	....	1	....	....	....	....	....	40	67
68	1	....	15	3	....	....	....	....	3	1	7	5	....	1	4	....	1	....	....	....	111	13	1	....	3	....	2	....	....	....	....	219	68
69	6	....	5	4	....	....	....	....	....	....	15	15	....	10	2	....	12	1	9	....	10	17	....	....	13	....	2	....	....	....	16	206	69
70	....	....	3	2	....	....	....	....	1	1	4	2	....	2	2	....	....	....	4	....	77	21	....	....	3	....	....	....	....	....	2	181	70
71	....	1	1	....	....	1	....	....	4	....	7	1	....	1	2	....	....	....	....	....	....	209	1	....	....	....	....	1	....	....	2	243	71
72	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	233	....	....	....	....	....	....	....	....	....	233	72
73	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	26	....	....	....	....	....	....	1	2	46	73
74	....	....	....	....	....	....	....	9	3	....	14	....	....	....	....	....	1	1	....	....	....	....	....	72	....	....	....	....	....	....	....	123	74
75	....	....	....	....	....	....	....	....	2	....	15	35	....	6	....	....	5	2	....	....	....	....	....	....	191	....	22	....	....	7	....	306	75
76	1	....	10	....	....	....	....	....	4	....	20	12	....	....	....	....	5	....	10	....	3	1	1	....	123	1	6	....	....	....	....	213	76
77	....	....	....	....	....	....	....	1	3	....	2	....	....	6	....	....	21	....	....	....	....	....	....	....	....	....	72	....	....	....	4	111	77
78	5	2	....	....	1	1	....	....	1	....	3	....	1	3	....	....	....	....	....	1	....	....	....	....	....	....	....	126	....	....	2	165	78
79	8	14	....	1	4	....	....	....	....	....	6	....	1	5	....	....	....	....	....	2	....	....	....	....	....	1	....	177	....	3	2	245	79
	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51		

TABLE 3.—*Medical Students Shown by Classes*

NAME OF COLLEGE	Enrolled During 1924-25 1st Year	2d Year	3d Year	4th Year	Totals
University of Alabama School of Med.*...	48	38	..	..	86
University of Arkansas Medical Dept.......	36	48	26	23	133
College of Medical Evangelists..............	94	41	44	71	250
Stanford University School of Medicine....	75	37	30	27	169
University of California Medical School....	57	51	55	46	209
University of Colorado School of Med.....	51	31	35	31	148
Yale University School of Medicine........	46	45	50	45	186
Georgetown University School of Medicine.	74	67	46	42	229
George Washington University Med. School	78	73	53	49	253
Howard University School of Medicine......	58	49	61	79	247
Emory University School of Medicine......	62	39	56	60	217
University of Georgia Medical Dept........	52	36	26	26	140
Chicago Medical School.....................	24	22	37	46	129
Loyola University School of Medicine......	118	83	58	70	329
Northwestern University Medical School...	113	92	109	114	428
Rush Medical College (Univ. of Chicago)..	105	91	186	149	531
University of Illinois College of Medicine..	128	98	124	110	460
Indiana University School of Medicine.....	117	89	85	88	379
State University of Iowa College of Med..	139	108	88	76	411
University of Kansas School of Medicine...	51	41	41	32	165
University of Louisville School of Medicine	82	63	68	63	276
Tulane Univ. of Louisiana School of Med.	112	92	90	89	383
Johns Hopkins University Medical Dept....	74	69	73	78	294
University of Maryland School of Medicine and College of Physicians and Surgeons	108	85	78	83	354
Boston University School of Medicine......	61	50	49	50	210
College of Physicians and Surgs., Boston †	7	4	5	4	20
Harvard University Medical School........	125	121	131	129	506
Tufts College Medical School..............	138	124	110	104	476
Middlesex College of Med. and Surg.—N.#	..	..	..	..	...
University of Michigan Medical School.....	136	119	119	159	533
Detroit College of Medicine and Surgery...	68	50	39	51	208
University of Minnesota Medical School....	116	107	109	93	425
University of Mississippi School of Med.*..	29	35	..	..	64
University of Missouri School of Med.*....	44	36	..	..	80
Kansas City College of Med. and Surg.—N.#	..	..	..	..	...
Kansas City Univ. of Phys. and Surgs.—N.#	..	..	..	..	...
St. Louis College of Phys. and Surgs.‡....	7	5	13	10	35
St. Louis University School of Medicine...	147	110	106	100	463
Washington University School of Medicine	71	69	75	76	291
Creighton University College of Medicine..	43	52	39	37	171
University of Nebraska College of Med.....	91	69	67	107	334
Dartmouth Medical School*.................	21	18	..	..	39
Albany Medical College.....................	34	15	18	16	83
University of Buffalo Medical Department.	72	62	51	53	238
Columbia Univ. College of Phys. & Surgs.	108	98	97	94	397
Cornell University Medical College........	82	58	64	58	262
Long Island College Hospital.............	117	85	90	96	388
New York Homeopathic Medical College and Flower Hospital.—H...............	77	36	41	32	186
University and Bellevue Hosp. Med. Coll...	119	104	96	102	421
Syracuse University College of Medicine....	53	43	42	45	183
Univ. of North Carolina School of Med.*..	42	35	..	..	77
Wake Forest College School of Medicine*..	22	27	..	..	49
Univ. of North Dakota School of Med.*...	26	18	..	..	44
Eclectic Medical College, Cincinnati.—E....	34	36	39	39	148
University of Cincinnati College of Med....	72	61	55	65	253
Western Reserve University School of Med.	78	42	47	42	209
Ohio State *University College of Medicine.*	95	63	75	92	325
University of Oklahoma School of Med....	52	48	41	29	170
University of Oregon Medical School......	64	50	51	45	210
Hahnemann Medical College and Hospital of Philadelphia.—H.	73	62	41	48	224
Jefferson Medical College of Philadelphia..	158	130	143	142	573
Temple University School of Medicine......	60	54	58	48	220
University of Pennsylvania School of Med.	108	96	133	134	471
Woman's Medical College of Pennsylvania	21	17	25	31	94
University of Pittsburgh School of Med...	66	63	49	49	227
Medical College of the State of S. Carolina	42	40	33	41	156
Univ. of South Dakota College of Med.*....	23	17	..	..	40
Univ. of Tennessee College of Medicine.....	66	41	54	58	219
Meharry Medical College...................	64	58	48	36	206
Vanderbilt University School of Medicine..	45	41	52	43	181
Baylor University College of Medicine.....	112	62	42	27	243
University of Texas School of Medicine....	59	52	64	58	233
University of Utah School of Medicine*...	23	23	..	..	46
University of Vermont College of Medicine	34	18	28	43	123
Medical College of Virginia................	88	73	77	68	306
University of Virginia Dept. of Medicine...	70	44	46	53	213
West Virginia University School of Med.*..	62	49	..	..	111
University of Wisconsin Medical School....	94	71	..	..	165
Marquette University School of Medicine..	71	66	55	53	245
Totals for 1925..........................	5,492	4,415	4,136	4,157	18,200
Totals for 1924..........................	5,160	4,441	4,330	3,797	17,728
Totals for 1923..........................	5.162	4.615	3.861	3.322	16,900

E.—Eclectic; H.—Homeopathic; N.—Nondescript.
* Gives only the first two years of the medical course.
† Figures and distribution are approximate.
‡ Figures exact; distribution approximate.
# No students reported for the session of 1924-25.

(Continued from page 585)

than last year. This is the largest number graduating since 1913. The number of graduates from the nonsectarian colleges was 3,856, or 461 more than last year.

TABLE 5.—*Medical College Graduates*

Year	Non-sectarian	Homeo-pathic	Eclectic	Physio-Med.	Nonde-script	Total
1880.........	2,673	380	188	..	..	3,241
1890.........	3,853	380	221	..	..	4,454
1900.........	4.715	413	86	..	..	5,214
1904.........	5,190	371	146	20	20	5,747
1910.........	4,113	183	114	16	14	4,440
1915.........	3,286	195	55	..	..	3,536
1920.........	2,826	97	30	..	94	3,047
1921.........	2,969	115	30	..	78	3,192
1922.........	2,358	64	34	..	73	2,529
1923.........	2,984	49	16	..	71	3,120
1924.........	3,395	74	27	..	66	3,562
1925.........	3,856	80	38	..	..	3,974

The number from the homeopathic colleges was 80, or 6 more than last year, and from the eclectic college there were 38, or 11 more than last year.

GRADUATES HOLDING DEGREES IN ARTS

Of the 3,974 medical graduates, 2,431 (see Table 6) also obtained degrees in arts or science. This was 411 more than last year. There has been a steady increase since 1910, when attention was first called to this item. This year 61.2 per cent. of all graduates held collegiate degrees, as compared with 56.7 per cent. last year and with only 15.3 per cent. in 1910. This increase is what was expected under the general adoption by medical schools of the entrance requirement of two years of college work. Of the 3,856 nonsectarian school graduates, 2,408, or 62.4 per cent., were reported to have baccalaureate degrees; of the 80 homeopathic graduates, 21, or 26.2 per cent., and of the 38 eclectic graduates, 2, or 5.3 per cent. During the last eight years only 2 graduates of the nondescript colleges have been reported as holding a bachelor's degree in arts or science. As noted in Table 10, of the 2,431 graduates holding baccalaureate degrees, 321—the largest number—came from Illinois medical colleges. New York reported 279, Pennsylvania reported 224, Massachusetts reported 140, and Ohio reported 139. All the better medical schools are now requiring two or more years of college work for admission, which brings more students in reach of the combined course for the B.S. and M.D. degrees.

TABLE 6.—*Medical Graduates with Liberal Arts Degrees*

Year	Nonsectarian Graduates	A.B., B.S.	Per Cent.	*Homeopathic* Graduates	A.B., B.S.	Per Cent.	*Eclectic* Graduates	A.B., B.S.	Per Cent.	*Totals* Graduates	A.B., B.S.	Per Cent.
1910	4,113	664	16.1	183	13	7.1	114	3	2.6	4,440	680	15.3
1915	3,286	839	25.5	195	16	8.2	55	3	5.5	3,536	858	24.3
1920	2,826	1,307	46.2	97	11	11.3	30	3	10.0	3,043	1,321	43.5
1921	2,969	1,447	48.2	115	33	28.7	30	...	...	3,192	1,465	46.0
1922	2,358	1,440	61.1	64	13	20.3	34	2	5.9	2,529	1,455	57.5
1923	2,984	1,770	59.3	49	13	26.5	16	3	18.7	3,120	1,787	57.3
1924	3,395	1,991	58.6	74	27	36.5	27	2	7.4	3,562	2,020	56.7
1925	3,856	2,408	62.4	80	21	26.2	38	2	5.3	3,974	2,431	61.2

Note.—Only two graduates of nondescript colleges were reported to have collegiate degrees during the last eight years.

WOMEN IN MEDICINE

During the last year there were 910 women studying medicine, or 44 less than last year. The percentage of women to all medical students this year is 5. There were 204 women graduates this year, 10 less than last year. Of all the women matriculants, 94 were in attendance at and 30 graduated from one medical college for women, while 816 (88.5 per cent.) were matriculated in, and 174 (85.3 per cent.) graduated from the coeducational colleges.

NUMBER OF COLLEGES

The numbers of medical colleges existing in certain years since 1850 are shown in Table 7. Since 1920 this number has gradually decreased from 85 until last year when the lowest number, 79, was reached. This year, however, the new medical school of the University of Rochester, New York, is open to receive medical students. This brings the number back to 80.

Table 7.—*Medical Colleges*

Year	Non-sectarian	Homeo-pathic	Eclectic	Physio-Med.	Nonde-script	Total
1850	44	3	4	1	..	52
1860.	53	6	4	2	..	65
1870	60	8	5	2	..	75
1880...............	76	14	8	2	..	100
1890	106	16	9	2	..	133
1900	126	22	9	2	1	160
1906...............	130	19	8	3	2	162
1910...............	100	12	8	1	1	131
1915	83	9	4	..	..	96
1920...............	76	5	1	..	3	85
1921...............	74	5	1	..	3	83
1922...............	74	3	1	..	3	81
1923...............	74	2	1	..	3	80
1924	73	2	1	..	3	79
1925...............	74	2	1	..	3	80

Of the 80 colleges, 74 are nonsectarian (regular), 2 are homeopathic, 1 is eclectic and 3 are nondescript. Two of these nondescript colleges, the Kansas City University of Physicians and Surgeons, and the Middlesex College of Medicine and Surgery, are intimately related to osteopathy or give liberal advanced standing to students of osteopathic colleges. The third, the Kansas City College of Medicine and Surgery, has claimed to be eclectic, but has been disowned by the National Eclectic Medical Association. There remain two so-called "regular" medical schools which, like the three just named, are of Class C grade.

The Kansas City College of Medicine and Surgery and the St. Louis College of Physicians and Surgeons and their deans were involved in the Missouri diploma-mill ring which was exposed in October, 1923. They are now undergoing a rigorous legal investigation conducted by the Missouri State Board of Health. The five Class C colleges, because of their deficiency in the essentials for teaching, are reported as not recognized by the licensing boards of more than forty states. Whether the diplomas of these schools are obtained by actual attendance, therefore, or whether they are purchased outright, their holders are not eligible to obtain licenses in any but a few states, chiefly Arkansas and Connecticut. When these few states secure adequate practice laws, the diplomas of these schools will cease to have any value.

LENGTH OF TERMS

Since twenty-five years ago (see Table 8), there has been a decided lengthening of college terms. This has reference to the weeks of actual work exclusive of holidays. Prior to 1905 the majority of colleges had sessions of twenty-eight weeks or less. Since then, however, colleges have gradually lengthened their sessions. For ten years no college has had sessions shorter than twenty-nine weeks, and for five years the shortest session reported has been thirty-one weeks. This year sessions of from thirty-three to thirty-six weeks were reported by 67, or 83.7 per cent., of all colleges. The one medical school which reported sessions longer than 36 weeks is a night school.

Table 8.—*College Terms*

	23 to 26 weeks		27 to 28 weeks		29 to 30 weeks		31 to 32 weeks		33 to 34 weeks		35 to 36 weeks		Over 36 weeks	
Year	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1901	58	36 5	42	26 4	8	5 0	26	16.4	4	2.5	18	11.3	3	1 9
1905	15	9 4	35	21 8	12	7.5	44	27.5	13	8.1	28	23.8	3	1.9
1910	2	1.5	8	6.0	19	14 3	42	31 5	30	22 6	30	22.6	2	1.5
1915	..	...	1	1 0	5	6.3	22	23 2	36	37 9	30	31.6	1	1.0
1920	..	...	..	...	1	1.2	10	11.8	38	44 7	29	34.1	..	...
1921	..	...	..	...	..	...	11	13 1	39	46 4	28	33 3	..	...
1922	..	...	..	...	..	...	10	13 1	43	56.6	23	30.3	..	...
1923	..	...	..	...	..	...	6	7.5	48	60 0	22	25 0	..	...
1924	..	..	..	...	..	...	6	7.6	44	55.7	23	29 0	..	...
1925*	..	...	..	...	..	...	6	7.6	35	43 8	33	41.2	1	1.2

* Information not furnished by five Class C colleges.

TUITION AND OTHER FEES

In Table 1, on pages 586, 581, are given the amounts charged by the various medical colleges per annum for tuition, matriculation, laboratory and graduation fees for each student. In Table 9, the 80 colleges have been grouped according to the amount of fees charged and according to their classification by the Council on Medical Education and Hospitals. Twelve colleges charge fees of $150 or less per year; thirty-three charge from $150 to $250; thirty-two from $250 to $350, and three charge more than $350. Of the twelve colleges charging $150 or less, eleven are listed among Class A (acceptable) colleges[3] by the Council on Medical Education. Among these are the schools of medicine of several state universities for residents of those states. In contrast, five of the colleges listed by the Council

Table 9.—*College Fees—1925*

	Class A	Class B	Class C	Per Cent.	Total
$ 50 or less		..	..	....	..
50 to 100 . .	6	..		7.5	6
100 to 150	5	..	1	7 5	6
150 to 200 .	18	..	2	25 0	20
200 to 250 . .	9	2	2	16 3	13
250 to 300	12	..	1	16 2	13
300 to 350	18	1	..	23 7	19
Above 350	3		..	3 8	3
Totals	71	3	6	100 0	80

Average fee per student in all colleges, $236.

---

[3] See classification in Table 1, pages 586, 587.

in Class C charge fees of $150 to $350 per year even though the diplomas from these colleges are reported as not recognized by from forty-two to forty-eight state licensing boards.[4]

COLLEGE FEES DURING FIFTEEN YEARS

As shown in Table 10, tuition fees in medical schools have been gradually increased during the last fifteen years. From 1910 to 1914, the majority of medical schools were charging fees of $150 or less. From 1914 to 1922 the majority were charging fees of $200 or less, while since 1922 the majority includes several medical schools charging more than $200. The number of medical schools charging more than $200 increased from 2.3 in 1910 to 56.2 in 1925. The average fees charged per student by all colleges in 1910 was $118; in 1915 it had increased to $145; in 1920 to $177 and in 1925 to $236. The fees in the present year, on the average, therefore, are just twice as large as in 1910. In 1910 there were still several medical schools which were paying all expenses or making a slight profit from students' fees. At present, however, the colleges are expending in the instruction of each student from two to several times as much as he pays in fees. This is made possible because of state aid or private endowment. No medical college in this period of scientific progress can maintain the laboratories and pay the essential instructors and properly teach modern medicine on the income received alone from students' fees.

Table 10.—*Increase in Medical College Fees During Fifteen Years.*

Showing for each Year the Number and Percentage of Colleges Requiring

Year	$50 or Less		$50 to $100		$100 to $150		$150 to $200		$200 to $250		*$250 to $300*		*$300 to $350*		*Above $350*		Total Colleges
	No.	%	No	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
1910	7	5.3	39	29.3	62	46.6	22	16.5	2	1.5	1	0.8	..	....	..	....	133
1911	2	1.7	33	27.5	54	45.0	27	22.5	4	3.3	..	....	..	....	..	....	120
1912	2	1.7	17	14.7	61	52.5	32	27.6	3	2.6	1	0.9	..	....	..	....	116
1913	3	2.8	20	18.9	43	40.6	34	32.1	5	4.7	1	0.9	..	....	..	....	108
1914	5	4.9	11	10.8	44	43.1	35	34.3	6	5.9	1	1.0	..	....	..	....	102
1915	6	6.4	10	10.6	31	33.0	38	40.5	7	7.4	2	2.1	..	....	..	....	94
1916	6	6.5	13	14.0	23	24.7	41	44.1	8	8.6	2	2.1	..	....	..	....	93
1917	5	5.3	11	11.6	29	30.5	39	41.0	7	7.4	4	4.2	..	....	..	....	95
1918	5	5.6	11	12.4	22	24.7	35	39.3	12	13.5	4	4.5	..	....	..	....	89
1919	5	5.8	9	10.6	14	16.5	35	41.2	18	21.2	4	4.7	..	....	..	....	85
1920	3	3.5	9	10.5	19	22.3	27	32.0	19	22.3	4	4.7	3	3.5	1	1.2	85
1921	3	3.6	7	8.4	15	18.2	25	30.1	18	21.7	7	8.4	7	8.4	1	1.2	83
1922	3	3.7	7	8.6	13	16.1	19	23.5	19	23.5	9	11.1	10	12.3	1	1.2	81
1923	2	2.5	7	8.7	6	7.5	22	27.5	18	22.5	11	13.8	13	16.3	1	1.2	80
1924	1	1.3	5	6.3	8	10.1	21	26.6	14	17.7	14	17.7	13	16.5	3	3.8	79
1925	—	...	6	7.5	6	7.5	20	25.0	13	16.3	13	16.2	19	23.7	3	3.8	80

As the cost of conducting medical schools has increased, there has also been an increase—and properly so—*in the fees charged* for tuition. A large provision has been made for scholarships and loan funds (see page 594) for the benefit of deserving students who are financially poor. Nevertheless, there is need for more such scholarships. Scholarships and loan funds are particularly important now because the medical curriculum has become so severe that students cannot spare the time to earn money during their attendance at the medical school. A mere lack of funds should not be permitted to prevent any exceptionally qualified student from becoming a physician.

COLLEGES, STUDENTS AND GRADUATES BY STATES

Since 1919, New York has had eight medical colleges—the largest number—(see Table 11) all but one of which are in Class A. This year another is added with the opening of the new medical school of the University of Rochester. Missouri and Pennsylvania have six colleges each and Illinois and Massachusetts have five each. Of Class C colleges, however, Missouri has three, Massachusetts two and Illinois one. These Class C colleges exist because the licensing boards in certain states do not have or do not exert the power to refuse to examine their graduates.[4] New York had the largest number of students enrolled, 2,158, followed by Illinois with 1,877, Pennsylvania with 1,809 and Massachusetts with 1,212. New York leads also in the number of graduates, having reported 491,

Table 11.—*Medical Colleges, Students and Graduates by States*

State	Colleges		Students		Graduates		Grads. with A.B. or B.S.
	Classes A and B	C	Men	Women	Men	Women	
Alabama	1	..	84	2	.....	...	.....
Arkansas	1	..	132	1	23	...	6
California	3	..	548	80	129	15	130
Colorado	1	..	134	14	27	3	8
Connecticut	1	..	181	5	42	3	40
District of Columbia	3	..	715	14	155	5	87
Georgia	2	..	353	4	85	..	48
Illinois	4	1	1,767	110	372	16	321
Indiana	1	..	362	17	80	8	86
Iowa	1	..	401	10	74	2	55
Kansas	1	..	155	10	32	..	22
Kentucky	1	..	271	5	61	2	24
Louisiana	1	..	373	10	85	2	48
Maryland	2	..	603	45	150	11	105
Massachusetts	3	2	1,164	48	270	14	140
Michigan	2	..	708	33	176	9	83
Minnesota	1	..	394	31	97	8	104
Mississippi	1	..	64	...	.....	...	.....
Missouri	3	3	856	13	178	1	129
Nebraska	2	..	486	19	136	4	109
New Hampshire	1	..	39	...	.....	...	.....
New York	9	..	1,997	161	449	42	279
North Carolina	2	..	124	2	.....	...	.....
North Dakota	1	..	43	1	.....	...	.....
Ohio	4	..	896	39	226	6	139
Oklahoma	1	..	158	12	28	1	28
Oregon	1	..	198	12	41	4	21
Pennsylvania	6	..	1,675	134	406	40	224
South Carolina	1	..	152	4	35	...	13
South Dakota	1	..	39	1	.....	...	.....
Tennessee	3	..	602	4	135	...	56
Texas	2	..	453	23	83	1	34
Utah	1	..	46	...	.....	...	.....
Vermont	1	..	115	8	42	1	12
Virginia	2	..	503	16	111	6	42
West Virginia	1	..	109	2	.....	...	.....
Wisconsin	2	..	390	20	42	...	38
Totals	74	6	17,290	910	3,770	204	2,431
			18,200		3,974		

---

[4] See J. A. M. A. **84**: 1348 (May 2) 1925, Table D.

followed by Pennsylvania with 446, Illinois with 388, Massachusetts with 284 and Ohio with 232.

QUALIFICATIONS OF STUDENTS AND GRADUATES

Table 12 shows for each fifth year the students and graduates grouped according to their classification by the Council on Medical Education and Hospitals. During the last thirteen years the percentage of students enrolled in Class A colleges has increased from 65.4 to 96.2 and the total number of students in attendance at these schools has increased from 11,122 to 17,497. Both the numbers and the percentages of students enrolled in Class B and Class C colleges have decreased. The percentage of students in Class B colleges dropped from 24.4 to 3.0 and in Class C colleges from 10.2 to 0.8. Of graduates, also, the percentage in Class A colleges has increased while it has decreased in Class B and Class C colleges. Such reductions as there have been in the total numbers of students and graduates, therefore, have been at the expense of the lower grade colleges.

TABLE 12.—*Students and Graduates According to Classification*

	Students						Graduates					
	Colleges Rated in Class						Colleges Rated in Class					
Year	A	%	B	%	C	%	A	%	B	%	C	%
1913	11,122	65.4	4,158	24.4	1,735	10.2	2,539	63.8	1,050	26.4	392	9.8
1915	11,314	76.0	2,668	17.9	909	6.1	2,620	74.4	688	19.4	219	6.2
1920	12,320	89.2	680	4.8	798	6.0	2,690	88.4	162	5.0	205	6.6
1925	17,497	96.2	554	3.0	149	0.8	3,852	96.2	118	3.0	4	0.8

HINTS TO PROSPECTIVE MEDICAL STUDENTS

The selection of a medical school is a matter of extreme importance and should be considered with special care. The student who is contemplating the study of medicine, therefore, should note with care the character and classification of the medical school in which he is planning to enroll,[5] and more particularly whether it is recognized by all state boards. He should note also the standards for admission, which are given in the descriptive statements of the colleges appearing on pages 600 to 609. A careful review of the material published this week will be of greater service to such students.

GRADUATE MEDICAL EDUCATION

The facilities for graduate medical instruction in the United States are set forth on pages 597-600. A list of graduate medical schools which have been approved by the Council on Medical Education and Hospitals is published alphabetically. There is also a series of 45 subjects under each of which is given a list of the institutions in which approved courses of instruction are being given. Other subjects will be added from time to time. Other institutions will be added to the list as rapidly as on investigation they are found worthy of approval. There are now 42 graduate medical schools on the approved list and 30 hospitals in which approved residencies in certain specialties can be obtained.

By the publication each year of these data, it is hoped that opportunities for advanced instruction in both graduate and undergraduate medical schools may be enlarged and that a constantly increasing use may be made of the abundance of clinical material in this country. The majority of undergraduate medical schools are now equal to those in other leading countries, but increased opportunities should be developed where physicians can secure high grade instruction in graduate medical work.

NEGRO MEDICAL STUDENTS AND GRADUATES

Owing to the special interest that has been shown recently in regard to the numbers of negro medical students and graduates enrolled in the various medical schools, the tabulation published herein has been made of those reported as having been enrolled in medical schools during the sessions of 1923-24 and 1924-25.

TABLE 13.—*Negro Medical Students*

	Session of 1923-24		Session of 1924-25	
Colleges	Students	Graduates	Students	Graduates
College of Medical Evangelists	1	1	1	..
University of California Medical School	1	1	1	..
Howard University School of Medicine	228	26	245	71
Northwestern University Medical School	12	3	6	1
Rush Medical College	5	4	6	2
Chicago Medical School	..	..	19	5
Indiana University School of Medicine	2	2	..	..
Boston University [illegible]	2	1	3	1
[illegible]	4	..	4	..
[illegible]	..	..	2	1
[illegible]	19	5	4	1
[illegible]	1	..	1	..
[illegible]	..	..	2	..
[illegible]	2	..	1	1
[illegible]	..	..	1	..
[illegible]	2	2	..	..
[illegible]	..	..	1	1
Ohio State [illegible]	6	1	10	2
[illegible]	1	..	..	..
[illegible]	6	..	7	4
Woman's Medical College of Philadelphia	5	..	3	2
Meharry Medical College	172	38	206	34
University of Vermont College of Medicine	2	1	..	..
McGill University Faculty of Medicine	..	..	20	..
Totals	471	85	543	126

From this it will be seen that in the session ending in 1924 there were 471 negro students enrolled, and of these, 85 were graduated. During the last session, however, that ending in 1925, there were 543 negro students enrolled (including 20 in the McGill University Faculty of Medicine) and of these 126 were graduated.

PROPORTION OF PHYSICIANS TO POPULATION

A study of Table 14 is interesting in that it shows the states which are best supplied with physicians. The states which have the lowest proportions of physicians in their order are North Dakota with one physician to every 1,386 people; South Carolina, one to 1,325; North Carolina, one to 1,178; Montana, one to 1,164; Idaho, one to 1,130; South Dakota, one to 1,085; Alabama, one to 1,061; Mississippi, one to 1,052, and Arizona, one to 1,008. In the United States as a whole there is now one physician to every 753 people as compared with one to 724 in 1923; one to 720 in 1919, and one to 640 in 1913. In 1921 statistics showed that, next to the United States, Great Britain had the largest supply of physicians, or one to every 1,087. In 1910, in Mr. Flexner's report, Great Britain is accredited with one physician to every 1,500 people, while in central European countries the proportion was from one to 2,000 to one to 2,500 people. In the United States the fact that numbers of graduates are again rapidly on the increase indicates that there will be no serious shortage in the supply of physicians.

---

[5] For useful information regarding all medical schools, a pamphlet entitled "Choice of a Medical School" will be sent to any address on receipt of 10 cents.—ED.

Table 14.—*Proportion of Physicians to Population*

State	Population, 1923 Estimate	Total No. Physicians, 1925	People to Each Physician, 1925
Alabama	2,423,912	2,284	1,061
Arizona	380,960	379	1,008
Arkansas	1,816,287	2,212	821
California	3,805,153	8,363	455
Colorado	990,320	1,837	539
Connecticut	1,476,483	1,884	784
Delaware	230,460	256	900
District of Columbia	*437,571	1,813	242
Florida	1,046,287	1,452	721
Georgia	2,999,196	3,122	961
Idaho	470,179	416	1,130
Illinois	6,790,521	10,743	632
Indiana	3,013,134	4,251	709
Iowa	2,468,643	3,378	731
Kansas	1,797,489	2,364	760
Kentucky	2,462,317	3,011	810
Louisiana	1,849,746	1,991	929
Maine	777,259	1,037	750
Maryland	1,505,295	2,313	651
Massachusetts	4,027,545	6,187	651
Michigan	3,977,821	4,837	822
Minnesota	2,499,396	2,823	885
Mississippi	*1,790,618	1,702	1,052
Missouri	3,443,971	5,806	593
Montana	611,109	525	1,164
Nebraska	1,333,922	1,869	714
Nevada	*77,407	129	600
New Hampshire	447,592	601	745
New Jersey	3,378,963	3,567	947
New Mexico	372,265	365	1,020
New York	10,843,661	17,671	614
North Carolina	2,686,325	2,281	1,178
North Dakota	672,041	485	1,386
Ohio	6,177,122	8,113	761
Oklahoma	2,162,079	2,524	857
Oregon	823,270	1,176	700
Pennsylvania	9,100,326	11,140	817
Rhode Island	626,672	771	813
South Carolina	1,744,408	1,317	1,325
South Dakota	655,532	604	1,085
Tennessee	2,393,077	3,128	768
Texas	4,939,630	6,063	815
Utah	476,812	505	944
Vermont	*352,428	537	656
Virginia	2,398,441	2,534	947
Washington	1,433,998	1,781	806
West Virginia	1,551,156	1,753	885
Wisconsin	2,739,574	2,826	969
Wyoming	211,864	255	831
Total	110,663,502	147,010	753

* Population, Jan. 1, 1920; no estimate made.

HOSPITAL INTERN YEAR

Medical Colleges

Twelve medical colleges have adopted the requirements of a fifth year to be spent by the student as an intern in an approved hospital or in other acceptable clinical work before the M.D. degree will be granted. These colleges and the years when the requirement became effective for matriculants and graduates are as follows:

	Affects Matriculants	Affects Graduates
University of Minnesota Medical School	1910-11	1915
Stanford University School of Medicine	1914-15	1919
Rush Medical College (University of Chicago)	1914-15	1919
University of California Medical School	1914-15	1919
Marquette University School of Medicine	1915-16	1920
Northwestern University Medical School	1915-16	1920
University of Illinois College of Medicine	1917-18	1922
Loyola University School of Medicine	1917-18	1922
Detroit College of Medicine and Surgery	1919-20	1924
University of Nebraska College of Medicine	1922-23	1926
University of Cincinnati College of Medicine	1922-23	1926
College of Medical Evangelists	1922-23	1927

Licensing Boards

The hospital intern year has been adopted as an essential qualification for the license to practice in twelve states, becoming effective in different years, as follows:

State Board of	Affects Student *Matriculants*	Affects All Applicants
Pennsylvania	1909-10	1914
New Jersey	1911-12	1916
Alaska	1912-13	1917
Rhode Island	1913-14	1917
North Dakota	1913-14	1918
Washington	1914-15	1919
Illinois	1917-18	1922
Michigan	1917-18	1922
Iowa	1918-19	1923
South Dakota	1920-21	1925
Utah	1921-22	1926
Delaware	1923-24	1928

The requirements both by medical schools and by state boards are overwhelmingly if not unanimously for the rotation service in general hospitals.

Scholarships and Loan Fund

As evidence that provision is being made for worthy students, regardless of their financial status, 576 scholarships are reported this year in the following forty-six medical schools:

University of Alabama School of Medicine, Tuscaloosa	67
*Stanford University Medical School,** San Francisco	2
University of California Medical School,* San Francisco	6
University of Colorado School of Medicine,* Denver	1
Yale University School of Medicine,* New Haven	2
Georgetown University School of Medicine, Washington	2
Emory University Medical School,* Atlanta	11
Northwestern University School of Medicine,* Chicago	1
Rush Medical College, Chicago	7
University of Illinois College of Medicine, Chicago	84
Indiana University School of Medicine,* Bloomington and Indianapolis	12
State University of Iowa College of Medicine, Iowa City	1
University of Kansas School of Medicine,* Kansas City	1
Johns Hopkins University Medical Department, Baltimore	6
University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore	8
Boston University School of Medicine,* Boston	16
Medical School of Harvard University,* Boston	50
Detroit College of Medicine and Surgery, Detroit	8
University of Missouri School of Medicine,* Columbia	10
Washington University School of Medicine, St. Louis	2
University of Nebraska College of Medicine,* Omaha	6
Dartmouth Medical School,* Hanover, N. H.	2
Albany Medical College, Albany, N. Y.	11
University of Buffalo Department of Medicine,* Buffalo	1
Columbia *University College of Physicians and Surgeons,* New York*	70
Cornell University Medical College,* New York	3
Syracuse *University College of Medicine, Syracuse*	1
University and Bellevue Hospital Medical College,* New York	1
University of *North Carolina School* of Medicine, Chapel Hill	1
University of Cincinnati College of Medicine,* Cincinnati	12
University of *Oregon Department of* Medicine,* Portland	5
Hahnemann Medical College and Hospital of Philadelphia*	12
Jefferson Medical College, *Philadelphia*	3
Temple University Department of Medicine, Philadelphia	3
University of Pennsylvania School of Medicine,* Philadelphia	12+
University of Pittsburgh School of Medicine, Pittsburgh	3
Woman's Medical College of *Pennsylvania,** Philadelphia	30
Medical College of the State of South Carolina, Charleston	8
University of Tennessee College of Medicine, Memphis	15
Vanderbilt University Medical Department, Nashville, Tenn.	4
University of Texas Department of Medicine,* Galveston	2
University of Vermont Medical School*	55
Medical College of Virginia, Richmond	10
University of Virginia Department of Medicine,* Charlottesville	2
West Virginia University School of Medicine,* Morgantown	1
University of Wisconsin Medical School, Madison	6
Total in 46 medical schools	576

* Have loan funds also.

Loan Funds

Besides the twenty-six colleges marked by an asterisk (*) in the above list which have loan funds for deserving but needy students, such funds are available also at the five following medical schools:

College of Medical Evangelists, Loma Linda, Calif.
Tulane University of Louisiana School of Medicine, New Orleans.
University of Michigan Medical School, Ann Arbor.
Wake Forest College School of Medicine, Wake Forest, N. C.
University of North Dakota School of Medicine, University.

GRADUATE MEDICAL EDUCATION IN THE UNITED STATES

Revised to August 18, 1925

The following general statement will make more clear the position of the Council on Medical Education and Hospitals in relation to graduate medical instruction. The Council's chief desire is to cooperate with the various postgraduate teaching institutions and hospitals providing residences in the specialties in bringing about certain improvements, in accordance with the principles concerning graduate medical education which were adopted by the House of Delegates of the American Medical Association in June, 1923.

The Council is not attempting to prevent any physician from getting any course he needs, nor is it trying to assume authority over any individual or any graduate teaching institution, or to prevent them from offering to physicians any courses they see fit. If an institution desires to have the Council's endorsement of its work or of any particular course offered, however, it should not be unwilling to comply with the principles which have been laid down and which are believed to be fair and just.

The principles aim to provide more abundant facilities for the training of general practitioners; the fact being recognized that any course of instruction which will improve the physician's knowledge or skill will be of service, both to him and to his patients. At the same time, however, it is believed that he will secure much better instruction if the courses are arranged in a graded series whereby he can progress from one course to another and know that he is continually advancing in his work instead of being forced, as heretofore, to make a selection from a maze of unstandardized short courses, which may or may not provide him with the instruction he most needs.

In regard to courses leading to the specialties in graduate schools and in hospitals, the council is withholding its approval from the present-day arrangements whereby physicians are being permitted to rush into some specialty without having developed the knowledge and skill which would justify such action. Here again, there is no attempt to prevent any physician from taking any course he desires, nor to hinder an individual or institution from offering instruction in any course. The Council merely asks that such courses be given in accordance with certain principles if they are to have the Council's endorsement.

The principles adopted in regard to courses for the training of specialists are being applied chiefly to certain hospitals and to groups of courses which, to a deplorable extent, are being used as short-cuts to the practice of specialties by many who cannot or do not obtain therefrom the proficiency which should be required. Neither the American Medical Association nor any other body of self-respecting people would endorse such a procedure; nor should they appear to do so by failing to do what they can to prevent it. The Council is withholding its approval from certain courses until adequate safeguards against their abuse have been established by the institutions offering such courses. These safeguards can be established without much difficulty by the graduate medical schools, (*a*) by having their courses properly graded; (*b*) by ascertaining the educational and professional qualifications of the physician-students, and (*c*) by admitting to any course only those students who are found to possess the essential prerequisite work or training. Such grading is, indeed, more essential for graduate students than for undergraduates, since the qualifications of the former now vary to a greater extent.

The courses which are most commonly utilized as short cuts are the operative courses such as operative surgery on the dog or the cadaver and like courses in orthopedic surgery, urology, gynecology, ophthalmology and otolaryngology. As now given, most of these courses fail to provide even the minimum requisite knowledge of diagnostic, laboratory or operative technic, much less the essential review courses in the preclinical sciences; the needed experience in the examination of patients; the diagnosis of the diseases covered by the specialty, and particularly the recognition of conditions which require operative treatment. Furthermore, some of the courses offered are independent of and make no provision for residences or advanced internships where the graduate student can subsequently develop skill in applying his special knowledge in the care and treatment of patients while still under the supervision of a recognized expert in the particular specialty before he begins his operative procedures in his own independent practice. These principles apply particularly to the surgical specialties and to the application of operative procedures, since a surgical operation, on the eye, for example, may needlessly handicap a patient for the balance of his lifetime. The portion of the principles regarding graduate medical schools which bear on this particular matter is given in paragraph 4, on page 596.

In the same paragraph, it is provided also that the courses of instruction should be "so graded that the student, if he desires, can obtain progressive work in a continuous course of two or three years," or, if he prefers, he can secure the same work in a series of shorter courses "so graded that, in effect, they would be segments of and, in total, the time and educational equivalent of the longer courses."

Where courses leading to specialization in any of the subjects enumerated are properly graded, and where the graduate school carefully investigates the previous training of the individual physician before assigning him to courses of instruction, it will not matter so much whether the student is merely preparing himself for better work in his general practice, or whether he is intending later to practice as a specialist.

The investigations during the last few years of the various postgraduate medical schools have revealed a deplorable lack of courses to which any standardizing body could give an unqualified approval because they are not graded and are not administered in accordance with any definite principles or standards. It is gratifying to note that the majority of the postgraduate teaching institutions have already abandoned the giving of diploma-like certificates to students taking short courses.

It is the Council's desire to cooperate most heartily with any institution in an effort to develop their graduate teaching so as to provide in the United States more well organized and well administered courses of graduate medical instruction. This is clearly the greatest need in medical education today.

PRINCIPLES REGARDING GRADUATE OR POSTGRADUATE MEDICAL SCHOOLS

The following principles were adopted by the House of Delegates in June, 1923, as a basis for the grading of graduate medical schools:

1. *Admission Requirements.*—The minimum admission requirement for those wishing to prepare themselves for the practice of a specialty should be graduation from an acceptable (Class A) medical college and completion of at least one year's internship in an approved hospital, or the experience gained by at least five years spent in the active practice of medicine. In the case of reputable physicians who desire to improve themselves for general practice, lenient admission requirements are justified. Courses for *general practitioners* should be open to all physicians who have received the degree of Bachelor or Doctor of Medicine from medical colleges considered acceptable by this Council, or to reputable physicians who were licensed in certain states before graduation was required.

2. *Records.*—Records should be kept by each institution showing (*a*) the preliminary and professional entrance qualifications of every student, which should be verified by authentic or documentary evidence; (*b*) previous attendance at graduate courses and grades obtained; (*c*) the subjects for which he is enrolled; (*d*) evidence of his faithful attendance at his work; (*e*) evidence of the student's proficiency as demonstrated by

his routine or research work, examinations or otherwise, and (*f*) whether an advanced degree or certificate was granted.

Records, indeed, are just as essential in a graduate as in an undergraduate school. Graduate physicians, indeed, will vary more in their preliminary and professional qualifications than the present-day undergraduates, and a knowledge of these qualifications is essential to decide the character and grade of the work to which the graduate student should be assigned. Again, a knowledge of his proficiency in the work to which he is assigned is essential to know whether he is worthy of advancement, or whether he can be trusted with responsibility for the diagnosis and treatment of patients who may be assigned to his care. Especially are such records important for those preparing for the practice of a specialty.

3. *Supervision.*—There should be careful and intelligent supervision of the entire school by a dean or other executive officer who holds, and has sufficient authority to carry out, fair ideals as determined by the present day needs of graduate medical education.

4. *Curriculum and Grading of Instruction Offered.*—The graduate school should have its various courses of instruction so graded that the student, if he desires, can obtain progressive work in a continuous course of two or three years,[1] as may be necessary to prepare him satisfactorily for the practice of a chosen specialty. If it is found that at some previous time the student has satisfactorily completed certain portions of the work, he might be given advanced standing and thereby enabled to complete his preparation in a shorter time.

Where short courses are offered in any of the clinical specialties, these also should be *so graded that, in effect, they would be segments of and, in total, the time and educational equivalent of the longer courses.* These segments might be taken at different times, but would ultimately lead the student to the same objective. With the exception of the courses in general medicine, all short courses should fit in with a scheme, the ultimate aim of which would be a complete and satisfactory training in the specialty for which the graduate school provides instruction. Any institution offering work in any specialty, therefore, should provide either itself or by affiliation with other graduate schools (*a*) review courses in anatomy, pathology and the other basic preclinical sciences which apply to the respective specialties; (*b*) clinics in which students can have the opportunity personally to examine patients in hospital wards and outpatient departments and in which various therapeutic and operative procedures can be demonstrated; (*c*) courses of operative and laboratory technic; and (*d*)—to be assigned only when the student's previous training will warrant—assistantships in which, under the supervision of a physician who is recognized as an expert in the particular specialty, he can gradually assume responsibility in the diagnosis and therapeutic or operative treatment of the sick. Opportunity should be provided also for research work in the chosen specialty bearing on both the fundamental sciences and clinical fields. With courses so graded, no student should be admitted to any advanced short course unless, on careful investigation, he is found to possess the knowledge and skill, such as are obtainable in the other prerequisite courses.

5. *Teachers.*—The graduate medical school should be supplied with a corps of teachers well trained in and responsible for the work in all subjects in which opportunities for study are announced. This should include teachers for essential review or advanced work in the preclinical sciences, as well as those who have in charge work in clinical subjects. The teaching staff should be made up of graduates of or teachers in Class A medical colleges or other high grade educational institutions. The faculty should be organized under the various teaching departments in which work is offered, and a competent teacher should be at the head of each department.

6. *Laboratories.*—The school should possess well-equipped laboratories to provide proper review or advanced work in both laboratory and clinical subjects essential for the specialty or specialties in which opportunities are offered. There should also be an adequate supply of special apparatus, such as stereopticons, balopticons, photomicrographic outfits and roentgen-ray equipment.

7. *Library and Museum Facilities.*—All graduate work in medicine demands intensive reading in the field studied. Library facilities in most of the graduate schools are either totally lacking or wofully inadequate. In some instances, however, this lack is provided for by good medical libraries attached to other nearby institutions. The graduate school, therefore, should have a medical library which should include an ample supply of modern text and reference books, files of bound medical periodicals, and the essential indexes. It should also receive regularly thirty or more standard medical periodicals, the latest numbers of which should be on tables or in racks where they are easily accessible to the graduate students.

The school should be supplied with adequate museum facilities, including anatomic and pathologic specimens.

8. *Hospitals and Dispensaries.*—Graduate courses in clinical subjects cannot be presented profitably in lectures only. There are objections to allowing short term graduate medical students to assume responsibility for the diagnosis and treatment of patients; nevertheless, ample clinical material must be available for demonstrations for short course students and for the personal use of properly qualified students in the longer term. The graduate medical school, therefore, should have a teaching hospital with a daily average of 200 or more patients, and an outpatient clinic with an average of 100 or more patients each day; or, if teaching is limited to a single specialty, a hospital of not less than twenty-five patients daily, and an outpatient clinic of at least fifty patients daily. In brief, it should have sufficient clinical material to enable it to provide satisfactory clinical study in the specialty or specialties for which opportunities are offered. In connection with the courses for general practitioners, ample clinical material should be available so that the student may be given the opportunity personally to examine patients in hospital wards and in the outpatient department, and to make the essential laboratory examinations.

9. *Annual Announcements.*—The graduate school should publish annually announcements, bulletins or catalogues giving detailed information in regard to its teachers, laboratories, dispensaries and hospitals; outlines of the various opportunities for study offered in both fundamental and clinical branches; a complete list of the students enrolled during the last preceding year, showing their medical schools and years of graduation and the subjects for which they registered, and a list of those to whom advanced degrees or diploma-like certificates were granted.

10. *Advanced Degrees, Diplomas, Certificates.*—No advanced degree or diploma-like certificate should be granted to any one who is not known to be proficient in the specialty pursued; nor to any one, under any circumstances, who has not completed at least one academic year in full-time study of a single special subject in the institution granting the certificate; and unless scholarship records of the student show that, throughout the period, he has faithfully attended to his work, and unless reasonable tests show that he has diligently and satisfactorily completed the work for which he was registered.

---

[1] The several fields of clinical specialization which are referred to are shown in the following list. Following completion of an internship in a general hospital, the minimum years designated after each subject represent what were considered as essential to insure efficiency in the various specialties by the Committees on Graduate Medical Instruction in their reports which were presented at the Annual Conference on Medical Education, held in Chicago, March 7, 1921:

Field	Years Essential	Field	Years Essential
(a) Surgery, General	3	(g) Internal Medicine	3
(b) Surgery, Orthopedic	3	(h) Pediatrics	3
(c) Surgery, Genito-Urinary	3	(i) Neuropsychiatry	3
(d) Gynecol. and Obstet	3	(j) Dermatology	2
(c) Ophthalmology	2	(k) Public Health and Hygiene	2
(f) Otolaryngology	2		

APPROVED GRADUATE MEDICAL SCHOOLS

Revised to August 18, 1925

Albany Medical College, Albany, N. Y.—Courses in Infectious Diseases and Public Health. Dr. Chas. C. Duryee, Director.

Baylor University College of Medicine, Dallas, Texas.—Summer Courses for General Practitioners. Dr. W. H. Moursund, Dean.

Chicago Policlinic, North Clark and Oak St.—Courses for general practitioners. Dr. M. L. Harris, Secretary.

Colorado School of Tuberculosis, Colorado Springs, Colorado.—Dr. G. Burton Gilbert, Secretary, 402 Burns Bldg., Colorado Springs.

Columbia University College of Physicians and Surgeons, New York.—Higher Degree and General Practice Courses. Special Summer Course in Public Health (U. S. P. H. S.). Dr. William Darrach, Dean.

Cornell University Medical College, New York.—Higher Degree and General Practice Courses. Dr. Walter L. Niles, Dean.

Detroit College of Medicine and Surgery, Detroit, Mich.—Course in Public Health. Dr. I. Werness, Registrar.

Harvard Medical School, Courses for Graduates, Boston.—Basic Review and General Practice Courses. Dr. Samuel R. Meaker, Dean.

Herman Knapp Memorial Eye Hospital, School of Ophthalmology, 500 W. 57th St., New York City.—Courses in Diseases of the Eye. Dr. Gerald H. Grout, Secretary.

Howard University School of Medicine, Washington, D. C.—Courses for General Practitioners. Dr. Edward A. Balloch, Dean.

Indiana University School of Medicine, Indianapolis.—Higher Degree Courses. Dr. Charles P. Emerson, Dean.

Johns Hopkins Medical School, Baltimore.—School of Public Health. Dr. William H. Welch, Director.

Manhattan Eye, Ear and Throat Hospital, School of Graduate Medical Instruction, 210 E. 64th St., New York City. Mr. Reuben O'Brien, Supt.

Massachusetts Institute of Technology, Cambridge.—Higher Degrees in Public Health. Dr. Henry Paul Talbot, Dean.

Neurological Institute, 149 E. 67th St., New York City.—Clinical Clerkships. Dr. E. G. Zabriskie, Secretary, Medical Board.

New York Post-Graduate Medical School and Hospital, Second Avenue and Twentieth St., New York City.—Special Internships and General Practice Courses. Dr. William D. Cutter, Dean.

Ohio State University College of Medicine, Columbus.—Course in Public Health. Dr. E. R. Hayhurst, Head of Dept. of Public Health.

Physiatric Institute, Morristown, New Jersey.—Diabetes and Other Metabolic Diseases. Dr. Frederick M. Allen, Director.

Stanford University School of Medicine, San Francisco.—Summer Courses for Graduates and Residencies in Medicine and Otolaryngology. Dr. William Ophuls, Dean.

State University of Iowa College of Medicine, Iowa City.—Summer Courses in Public Health (U. S. P. H. S.). Dr. Lee Wallace Dean, Dean.

Trudeau School of Tuberculosis, Saranac Lake, New York.—Courses for General Practitioners. Dr. E. R. Baldwin, Director.

Tulane University Graduate School of Medicine (New Orleans Polyclinic), New Orleans.—Higher Degrees, Fellowships and General Practice Courses. Dr. Charles Chassaignac, Dean.

University of Buffalo School of Medicine, Buffalo, N. Y.—Summer Courses for General Practitioners. Dr. C. Sumner Jones, Dean.

University and Bellevue Hospital Medical College, New York City.—Special Courses in Surgery. Dr. John Wyckoff, Secretary.

University of California Graduate Division, Berkeley-San Francisco.—Higher Degree and Public Health Courses (U. S. P. H. S.). Dr. Charles B. Lipman, Dean.

University of Chicago, Rush Medical College, Wood and Harrison Sts., Chicago.—Special and Higher Degree Courses and Residencies. Dr. Ernest E. Irons, Dean.

University of Cincinnati College of Medicine, Cincinnati.—Fellowships in Surgery. Dr. Fredk. C. Hicks, President.

University of Colorado School of Medicine, Denver.—Course in Ophthalmology. Dr. Chas. N. Meader, Dean.

University of Georgia Medical Department, Augusta.—Courses in Public Health. Dr. William H. Goodrich, Dean.

University of Illinois College of Medicine, Chicago.—Higher Degree Courses. Dr. Albert C. Eycleshymer, Dean.

University of Michigan Medical School, Ann Arbor.—Summer Courses in Public Health (U. S. P. H. S.). Dr. Hugh Cabot, Dean.

University of Minnesota Graduate School of Medicine, Minneapolis-Rochester.—Higher Degree Fellowships and General Practice Courses. Dr. Guy Stanton Ford, Dean.

University of Pennsylvania Graduate School of Medicine, Philadelphia.—Higher Degree and General Practice Courses. Dr. George H. Meeker, Dean.

University of Texas School of Medicine, Galveston.—Summer Courses for General Practitioners. Dr. W. Keiller, Dean.

University of Wisconsin Medical School, Madison.—Course in Public Health. Miss G. K. McRae, Secretary.

Washington University School of Medicine, St. Louis.—Courses in Otolaryngology, Pediatrics, Infant Feeding, Obstetrics and Diseases of the Heart. Dr. McKim Marriott, Dean.

Yale University School of Medicine, New Haven, Conn.—Residencies and General Practice Courses. Dr. Milton C. Winternitz, Dean.

Berlin.—University of Berlin Medical Faculty, Berlin, Germany.—Courses in Diseases of the Digestive Tract, Syphilis and Advanced Courses in Specialties. Further information and detailed prospectus may be secured by applying to the "Geschaftsstelle," Berlin, N. W. 6., Luisenplatz, 2-4-Kaiserin Friedrich-Haus.

Bordeaux.—University of Bordeaux, France.—Special Courses Otorhinolaryngological Surgery, Bronchoscopy, Plastic, Mastoid and Neck Surgery. For information apply to Dr. Leon Felderman, 4428 York Rd., Philadelphia, Pa.

London.—Hospital for Sick Children, Great Ormond St., London, W. C. 1, England.—Special Graduate Course in Pediatrics. Address, Oswald L. Addison, Dean, Medical School.

London.—National Hospital for the Paralysed and Epileptic, Queen Square, Bloomsbury, W. C. 1, England.—Special Courses and Lectures on the Nervous System. Dr. J. G. Greenfield, Dean, Medical School.

London.—University of London, University Extension Dept., London, England.—Course of Lectures on Medical Hydrology. Dr. Halburt J. Waring, Dean.

Scotland.—James MacKenzie Institute for Clinical Research, St. Andrews.—Courses for General Practitioners. For further information write to Dr. J. Hunter Paton, Secretary.

HOSPITALS PROVIDING APPROVED RESIDENCIES IN CERTAIN SPECIALTIES

Barnes Hospital, 600 S. Kingshighway, St. Louis.—Residencies in the specialties, Internal Medicine, Obstetrics, Surgery and Gynecology. Dr. L. D. Burlingham, Med. Supt.

Bloomingdale Hospital for Mental Diseases, White Plains, New York.—Courses in Psychiatry. Dr. W. L. Russell, Med. Dir.

Children's Memorial Hospital, 735 Fullerton Ave., Chicago.—Special Courses in Infant Feeding, Pediatrics and Otolaryngology. Dr. G. E. Baxter, Secretary.

Colorado Psychopathic Hospital, 4200 E. Ninth Ave., Denver.—Residencies in Neuropsychiatry. Dr. Franklin E. Ebaugh, Director.

Fitzsimons General Hospital, Denver Colo. Special Residencies in Tuberculosis. Lieut.-Colonel Paul C. Hutton, Commanding Officer.

Hospital for Joint Diseases, Madison Ave. from 123d to 124th Sts., New York City. Residencies in Orthopedic Surgery, and Physiotherapy. Dr. Henry W. Frauenthal, Medical Director.

Johns Hopkins Hospital, Baltimore.—Residencies in the specialties. Dr. Winford H. Smith, Director.

Manhattan Eye, Ear and Throat Hospital, 210 E. 64th St., New York City.—Special Internships in Eye and in Ear, Nose and Throat. Mr. Reuben O'Brien, Supt.

Manhattan Maternity and Dispensary, 327 E. 60th St., New York City.—Special Residencies in Obstetrics. Miss Emily A. Porter, R.N., Supt.

Massachusetts Eye and Ear Infirmary, 243 Charles St., Cor. Fruit St., Boston.—Special Internships in Eye, and in Ear, Nose and Throat. Dr. Frederic A. Washburn, Director.

Milwaukee Children's Hospital, 219—10th St., Milwaukee, Wis.—Special Residencies in Pediatrics. B. M. Henderson, Supt.

Misericordia Hospital, 2224 Chestnut St., Milwaukee, Wis.—Special Residencies in Obstetrics. Sister St. Jude, R.N., Supt.

Montefiore Hospital, Gun Hill Road near Jerome Ave., New York City.—Special Residencies in Medicine, Neurology, Tuberculosis and Orthopedic Surgery. Dr. Ernst P. Boas, Med. Dir.

Mount Sinai Hospital, Fifth Ave. and 100th St., New York City.—Course in Internal Medicine and Pediatrics, Surgery, Gynecology and Dietetics. Write to the Secretary for Medical Instruction, 1 E. 100th St.

New Haven Hospital, 330 Cedar St., New Haven, Conn.—Special Residencies in Gynecology, Medicine and Obstetrics. Dr. Willard C. Rappleye, Med. Dir.

New Haven School of Physiotherapy, 420 Temple St., New Haven, Conn.—Dr. Harry Eaton Stewart, Director.

New York Eye and Ear Infirmary, Second Ave., Corner 13th St., New York City.—Special Residencies in Ophthalmology and Otology. Mr. Eustis Paine, Secretary.

New York Post-Graduate Hospital, Second Avenue and Twentieth St., New York City.—Special Internships and General Practice Courses. Dr. William D. Cutter, Med. Dir.

New York Skin and Cancer Hospital, 2nd Ave. and 19th St., New York City.—Courses for General Practitioners. Miss Sara Burns, R.N., Supt.

New York Society for the Relief of the Ruptured and Crippled, 321 East 42nd St., New York City.—Special Courses in Orthopedic Surgery. Dr. Joseph D. Flick, Supt.

Pennsylvania Hospital, 4401 Market St., Philadelphia.—Courses in Neurology and Psychiatry. Dr. Earl D. Bond, Administrator.

Peter Bent Brigham Hospital, 721 Huntington Ave., Boston.—Special Courses in Medicine, Surgery, Pathology and Roentgenology. Dr. J. B. Howland, Supt.

Providence City Hospital, Eaton St., Providence, Rhode Island.—Courses in Contagious Diseases. Dr. D. L. Richardson, Med. Supt.

South View Municipal Hospital, 18th Ave. and Mitchell St., Milwaukee, Wis.—Courses in Contagious Diseases. Dr. W. W. Bauer, Med. Supt.

State Hospital for Mental Diseases, Howard, Rhode Island.—Courses in Neurology. Dr. Arthur H. Harrington, Med. Supt.

St. Elizabeth's Hospital, Claremont and LeMoyne Sts., Chicago.—Summer Courses in Clinical Medicine. Sister M. Cordula, Supt.

St. Louis Children's Hospital, 500 S. Kingshighway, St. Louis.—Residencies in Pediatrics. Dr. L. H. Burlingham, Administrator.

St. Mary's, Colonial, Kahler, Worrell and Damon Hospitals, Rochester, Minn. Services in these hospitals form part of the Fellowships in the University of Minnesota Graduate Medical School. See list of Approved Graduate Medical Schools.

Wills Hospital, Philadelphia.—Residencies, 16 Months, in Ophthalmology. Mr. Stephen Wierzbichi, Supt.

Paris.—**International Clinics of Oto-Rhino-Laryngology and Facio-Maxillary Surgery**, St. Louis Hospital, Paris, France.—Courses in Oto-Rhino-Laryngology and Surgery. Applications or inquiries may be addressed to Dr. J. Eastman Sheehan, 636 Fifth Ave., New York.

Porto Rico.—**Presbyterian Hospital**, San Juan.—Courses in Tropical Medicine. Dr. Garry R. Burke, Assoc. Med. Director.

Graduate Courses in Medical Subjects and Residencies in Specialties

Where These Courses May Be Obtained

Anatomy
Cornell University Medical College.
Harvard Medical School.
Indiana University School of Medicine.
James MacKenzie Institute for Clinical Research, Scotland.
University of California Graduate Division, Berkeley (for advanced students).
University of Illinois College of Medicine.
University of Minnesota Graduate School of Medicine.
University of Pennsylvania Graduate School of Medicine.
Yale University School of Medicine.

Anesthesia
Harvard Medical School.
New York Post-Graduate Medical School.
University and Bellevue Hospital Medical College.
University of California Graduate Division, Berkeley.
University of Pennsylvania Graduate School of Medicine.

Bacteriology
Columbia University College of Physicians and Surgeons.
Cornell University Medical College.
Harvard Medical School.
Indiana University School of Medicine.
James MacKenzie Institute for Clinical Research, Scotland.
New York Post-Graduate Medical School.
University of California Graduate Division, Berkeley.
University of Illinois College of Medicine.
University of Minnesota Graduate School of Medicine.
University of Pennsylvania Graduate School of Medicine.
Yale University School of Medicine.

Biochemistry
Columbia University College of Physicians and Surgeons.
Cornell University Medical College.
Harvard Medical School.
Indiana University School of Medicine.
James MacKenzie Institute for Clinical Research, Scotland.
New York Post-Graduate Medical School.
University of California Graduate Division, Berkeley.
University of Illinois College of Medicine.
University of Minnesota Graduate School of Medicine.
University of Pennsylvania Graduate School of Medicine.
Yale University School of Medicine.

Bronchoscopy
Columbia University College of Physicians and Surgeons.
University of Pennsylvania Graduate School of Medicine.

Cardiology
Harvard Medical School.
University of California Graduate Division, Berkeley.
University of Pennsylvania Graduate School of Medicine.
Washington University School of Medicine.
Yale University School of Medicine.

Contagious Diseases
Providence City Hospital, Rhode Island (Residencies).
South View Municipal Hospital, Milwaukee.
University of California Graduate Division, Berkeley (Residencies).
Yale University School of Medicine.

Dental, Surgery
Mayo Foundation, Rochester, Minn. (Fellowships).

Dermatology
Chicago Policlinic.
Columbia University College of Physicians and Surgeons.
Cornell University Medical College.
Harvard Medical School.
Johns Hopkins Hospital (Residencies).
New York Post-Graduate Medical School.
New York Skin and Cancer Hospital.
Stanford University School of Medicine.
University of California Graduate Division, Berkeley.
University of Minnesota Graduate School of Medicine (Fellowships).
University of Pennsylvania Graduate School of Medicine.

Diabetes
Columbia University College of Physicians and Surgeons.
Harvard Medical School.
Physiatric Institute, Morristown, N. J.
University of Pennsylvania Graduate School of Medicine.

Dietetics
Mount Sinai Hospital, New York.

Electro-Therapeutics
Columbia University College of Physicians and Surgeons.
Harvard Medical School.
University of Pennsylvania Graduate School of Medicine.

Electrocardiography—(See Cardiology)

Gastro-Enterology
Columbia University College of Physicians and Surgeons.
Harvard Medical School.
University of California Graduate Division, Berkeley.
University of Pennsylvania Graduate School of Medicine.

Genito-Urinary—(See Urology)

Gynecology
Barnes Hospital, St. Louis (Residencies).
Columbia University, College of Physicians and Surgeons.
Harvard Medical School.
Howard University School of Medicine.
Johns Hopkins Hospital (Residencies).
Mount Sinai Hospital, New York (Residencies).
New Haven Hospital (Residencies).
New York Post-Graduate Medical School.
Stanford University School of Medicine.
University of California Graduate Division (Residencies).
University of Minnesota Graduate School of Medicine (Fellowships).
University of Pennsylvania Graduate School of Medicine.

Homeopathic Medicine
University of California Graduate Division, Berkeley.

Hygiene—(See Public Health)

Immunology
Columbia University College of Physicians and Surgeons.
Harvard Medical School.
University of California Graduate Division, Berkeley.
University of Pennsylvania Graduate School of Medicine.
Yale University School of Medicine.

Infant Feeding
Children's Memorial Hospital, Chicago.
Columbia University College of Physicians and Surgeons.
University of Pennsylvania Graduate School of Medicine.
Washington University School of Medicine.

Insulin Treatment—(See Diabetes)

Internal Medicine—(See Medicine)

Intubation
University of Pennsylvania Graduate School of Medicine.

Laryngology and Rhinology
Columbia University College of Physicians and Surgeons.
Cornell University Medical College.
International Clinic of Oto-Rhino-Laryngology and Surgery (St. Louis Hospital, Paris, France).
Manhattan Eye, Ear and Throat Hospital.
Massachusetts Eye and Ear Infirmary (Residencies).
Mount Sinai Hospital, New York.
New York Post-Graduate Medical School.
Stanford University School of Medicine.
Tulane University Graduate School of Medicine.
University of Berlin Medical Faculty.
University of Bordeaux, France.
University of Chicago, Rush Medical College.
University of Minnesota Graduate School of Medicine (Fellowships).
Washington University School of Medicine.

Medical Hydrology
University of London, England.

Medicine
Barnes Hospital, St. Louis (Residencies)
Columbia University College of Physicians and Surgeons.
Cornell University Medical College.
Howard University School of Medicine.
Indiana University School of Medicine.
Johns Hopkins Hospital (Residencies).
Mount Sinai Hospital, New York (Residencies).
New Haven Hospital (Residencies.)
New York Post-Graduate Medical School.
Peter Bent Brigham Hospital, Boston (Residencies).
St. Elizabeth's Hospital, Chicago (Clinical Medicine).
Stanford University School of Medicine (Graduate Courses and Residencies).
University of Berlin Medical Faculty
University of California Graduate Division, Berkeley (Residencies).
University of Minnesota Graduate School of Medicine.
University of Pennsylvania Graduate School of Medicine.
Yale University School of Medicine.

Medico-Military Science and Tactics
University of California Graduate Division, Berkeley.

Metabolic Diseases
Columbia University College of Physicians and Surgeons.
Harvard Medical School.
Physiatric Institute, Morristown, N. J.
Stanford University School of Medicine.
University of Berlin Medical Faculty.
University of California Graduate Division, Berkeley.
University of Minnesota Graduate School of Medicine.
Yale University School of Medicine.

Nephritis
Columbia University College of Physicians and Surgeons.
Harvard Medical School.
Physiatric Institute, Morristown, N. J.
Yale University School of Medicine.

Neurology and Psychiatry
Bloomingdale Hospital for Mental Diseases, White Plains, N. Y.
Colorado Psychopathic Hospital (Residences).
Columbia University College of Physicians and Surgeons.
Cornell University Medical College.
Harvard Medical School.
Johns Hopkins Hospital (Residencies).
Montefiore Hospital, New York City (Residencies).
Mount Sinai Hospital, New York.
National Hospital for the Paralysed and Epileptic, W. C. 1, London.
Neurological Institute, New York City.
New York Post-Graduate Medical School.
Pennsylvania Hospital, Philadelphia (Residencies).
Stanford University School of Medicine.
State Hospital for Mental Diseases, Howard, R. I.
University of California Graduate Division, Berkeley.
University of Minnesota Graduate School of Medicine (Fellowships).
University of Pennsylvania Graduate School of Medicine.

Obstetrics

Barnes Hospital, St. Louis (Residencies)
Harvard Medical School.
Howard University School of Medicine.
Johns Hopkins Hospital (Residencies).
Manhattan Maternity and Dispensary, New York City (Residencies).
Misericordia Hospital, Milwaukee (Residencies).
New Haven Hospital (Residencies).
Stanford University School of Medicine.
Tulane University Graduate School of Medicine (Fellowships).
University of California Graduate Division (Residencies).
University of Minnesota Graduate School of Medicine.
University of Pennsylvania Graduate School of Medicine.
Washington University School of Medicine.

Ophthalmology and Otology

Columbia University College of Physicians and Surgeons.
Cornell University Medical College.
Harvard Medical School.
Herman Knapp Memorial Eye Hospital.
James MacKenzie Institute for Clinical Research, Scotland.
Manhattan Eye, Ear and Throat Hospital.
Massachusetts Eye and Ear Infirmary (Residencies).
Mount Sinai Hospital, New York.
New York Eye and Ear Infirmary (Residencies).
New York Post-Graduate Medical School.
Stanford University School of Medicine.
Tulane University Graduate School of Medicine.
University of California Graduate Division, Berkeley.
University of Colorado School of Medicine.
University of Minnesota Graduate School of Medicine.
University of Pennsylvania Graduate School of Medicine.
Washington University School of Medicine.
Wills Hospital, Philadelphia (Residencies).

Orthopedic, Surgery

Harvard Medical School.
Hospital for Joint Diseases, New York City (Residencies).
New York Post-Graduate Medical School.
New York Society for the Relief of the Ruptured and Crippled, New York City (Residencies).
Stanford University School of Medicine.
University of California Graduate Division, Berkeley.
University of Minnesota Graduate School of Medicine (Fellowships).
University of Pennsylvania Graduate School of Medicine.
Yale University School of Medicine.

Oto-laryngology

Columbia University College of Physicians and Surgeons.
Harvard Medical School.
Howard University School of Medicine.
Indiana University School of Medicine.
International Clinic of Oto-Rhino-Laryngology and Surgery (St. Louis Hospital, Paris).
Johns Hopkins Hospital, Baltimore (Residencies).
New York Post-Graduate Medical School.
Stanford University School of Medicine (Graduate Courses and Residencies).
University of Berlin Medical Faculty.
University of Bordeaux, France.
University of Chicago, Rush Medical College.
University of California Graduate Division, Berkeley.
University of Minnesota Graduate School of Medicine (Fellowships).
University of Pennsylvania Graduate School of Medicine.
Washington University School of Medicine.

Parasitology and Tropical Medicine

University of California Graduate Division, Berkeley.
University of Pennsylvania Graduate School of Medicine.

Pathology

Columbia University College of Physicians and Surgeons.
Cornell University Medical College.
Harvard Medical School.
Indiana University School of Medicine.
New York Post-Graduate Medical School.
Peter Bent Brigham Hospital, Boston.
Stanford University School of Medicine.
University of California Graduate Division, Berkeley (for advanced students).
University of Illinois College of Medicine.
University of Minnesota Graduate School of Medicine.
University of Pennsylvania Graduate School of Medicine.
Yale University School of Medicine.

Pediatrics

Children's Memorial Hospital, Chicago.
Columbia University College of Physicians and Surgeons.
Harvard Medical School.
Hospital for Sick Children, London, England.
Johns Hopkins Hospital, Baltimore (Residencies).
Milwaukee Children's Hospital (Residencies).
Mt. Sinai Hospital, New York City.
New York Post-Graduate Medical School.
Stanford University School of Medicine.
St. Louis Children's Hospital (Residencies).
Tulane University Graduate School of Medicine (Fellowships).
University of California Graduate Division (Residencies).
University of Minnesota Graduate School of Medicine (Fellowships).
University of Pennsylvania Graduate School of Medicine.
Washington University School of Medicine.
Yale University School of Medicine (Research).

Pharmacology

Cornell University Medical College.
Harvard Medical School.
Stanford University School of Medicine.
University of California Graduate Division, Berkeley.
University of Illinois College of Medicine.
University of Pennsylvania Graduate School of Medicine.
Yale University School of Medicine.

Physiology

Columbia University College of Physicians and Surgeons.
Cornell University Medical College.
Harvard Medical School.
Indiana University School of Medicine.
James MacKenzie Institute for Clinical Research, Scotland.
University of California Graduate Division.
University of Pennsylvania Graduate School of Medicine.
Yale University School of Medicine.

Physiotherapy

Columbia University College of Physicians and Surgeons.
Harvard Medical School.
Hospital for Joint Diseases, New York City (Residencies).
New Haven School of Physiotherapy.
Stanford University School of Medicine.

Preventive Medicine (See Public Health)

Proctology

Harvard Medical School.

Public Health, Hygiene and Preventive Medicine

Albany Medical College.
Columbia University College of Physicians and Surgeons.
Detroit College of Medicine and Surgery.
Harvard Medical School.
Howard University School of Medicine.
Johns Hopkins Medical School, Baltimore.
Massachusetts Institute of Technology.
Ohio State University College of Medicine.
State University of Iowa College of Medicine.
University of California Graduate Division, Berkeley.
University of Georgia Medical Department.
University of Michigan Medical School.
University of Minnesota Graduate School of Medicine.
University of Pennsylvania Graduate School of Medicine.
University of Wisconsin Medical School, Madison.
Yale University School of Medicine, New Haven.

Radiology

Harvard Medical School.
Howard University School of Medicine.
James MacKenzie Institute for Clinical Research, Scotland.
New York Post-Graduate Medical School.
New York Skin and Cancer Hospital.
Peter Bent Brigham Hospital, Boston.
Stanford University School of Medicine.
University of California Graduate Division, Berkeley.
University of Minnesota Graduate School of Medicine (Fellowships).
University of Pennsylvania Graduate School of Medicine.
Yale University School of Medicine.

Refraction

Columbia University College of Physicians and Surgeons.
Cornell University Medical College.
Harvard Medical School.
Herman Knapp Memorial Eye Hospital.
Manhattan Eye, Ear and Throat Hospital.
Massachusetts Eye and Ear Infirmary.
New York Post-Graduate Medical School.
Tulane University Graduate School of Medicine.
University of Colorado School of Medicine.
University of Minnesota Graduate School of Medicine.
University of Pennsylvania of Graduate School of Medicine.
Washington University School of Medicine.

Research Medicine

University of California Graduate Division (for advanced students)

Rhinology—(See Oto-laryngology)

Roentgenology—(See Radiology)

Surgery (Surgical Anatomy, Surgical Diagnosis, Operative Surgery)

Barnes Hospital, St. Louis (Residencies).
Columbia University College of Physicians and Surgeons.
Cornell University Medical College.
Harvard Medical School.
Howard University School of Medicine.
Indiana University School of Medicine.
International Clinic of Oto-Rhino-Laryngology and Surgery (St. Louis Hospital, Paris, France).
Johns Hopkins Hospital (Residencies).
Mount Sinai Hospital, New York City (Residencies).
New York Post-Graduate Medical School.
Peter Bent Brigham Hospital, Boston (Residencies).
Stanford University School of Medicine.
University and Bellevue Hospital Medical College.
University of California Graduate Division (Residencies).
University of Cincinnati College of Medicine (Fellowships).
University of Minnesota Graduate School of Medicine (Fellowships).
University of Pennsylvania Graduate School of Medicine.
Yale University School of Medicine.

Surgery (Traumatic and Emergency)

New York Post-Graduate Medical School.

Syphilology

Columbia University College of Physicians and Surgeons.
Harvard Medical School.
New York Skin and Cancer Hospital.
Stanford University School of Medicine.
University of Berlin Medical Faculty.
University of California Graduate Division, Berkeley.
University of Pennsylvania Graduate School of Medicine.
Yale University School of Medicine.

Tropical Medicine

Columbia University College of Physicians and Surgeons.
Presbyterian Hospital, San Juan, Porto Rico.

Tuberculosis

Colorado School of Tuberculosis.
Fitzsimons General Hospital, Denver, Colo. (Residencies).
The Trudeau School of Tuberculosis, Saranac Lake, N. Y.
University of California Graduate Division (Residencies).
University of Pennsylvania Graduate School of Medicine.

UROLOGY
- Chicago Policlinic.
- Harvard Medical School.
- Howard University School of Medicine.
- Johns Hopkins Hospital (Residencies).
- New York Post-Graduate Medical School.
- Stanford University School of Medicine.
- University of California Graduate Division, Berkeley.
- University of Minnesota Graduate School of Medicine.
- University of Pennsylvania Graduate School of Medicine.
- Yale University School of Medicine.

VENEREOLOGY
- Chicago Policlinic.

DESCRIPTION OF MEDICAL COLLEGES

Below are given brief descriptions of the medical colleges in the United States and Canada that are legally chartered to teach medicine, of which ten do not grant degrees. The name, address, year of organization, history and date when first class graduated are given in each instance. Unless otherwise stated, a class graduated each subsequent year. Where official reports have been received from the college, information regarding faculty, entrance requirements, length of term, fees, students (excluding specials and postgraduates), graduates, name of dean and next session is given without discrimination. In a few instances in which such reports were not received, the information published is from other reliable sources. Figures for graduates include all who graduated since July 1, 1924. Extract of rules and the membership of the Association of American Medical Colleges are shown following the list of colleges. Figures showing population of cities and states are taken from the United States Census Bureau's report for 1920. Statements have been added showing the preliminary requirements held by state licensing boards where those requirements include one or two years of college work. Twelve states, Alaska (Ter.), Delaware, Illinois, Iowa, Michigan, New Jersey, North Dakota, Pennsylvania, Rhode Island, South Dakota, Utah and Washington, require also a year's hospital internship as an essential qualification for a license.

ALABAMA

Alabama, population 2,348,174, has one medical college, the School of Medicine of the University of Alabama, located in Tuscaloosa, a city with a population of 11,996.

In order to secure licenses to practice medicine in Alabama, students must complete two years of work in an approved college of liberal arts, including courses in physics, chemistry, biology and a modern language, prior to entering on the study of medicine.

Tuscaloosa

University of Alabama School of Medicine, University Campus, Tuscaloosa.—Organized in 1859 at Mobile as the Medical College of Alabama. Classes graduated in 1861 and subsequent years excepting 1862 to 1868, inclusive. Reorganized in 1897 as the medical department of the University of Alabama. Present title assumed in 1907, when all property was transferred to the University of Alabama. In 1920, clinical teaching was suspended and the medical school was removed to the university campus at Tuscaloosa. The faculty includes 6 professors and 6 instructors, assistants, etc., a total of 12. The course of study covers two years of thirty-six weeks each. The tuition fee each year is $260. The Dean is Dr. Clyde Brooks. Total registration for 1924-1925 was 86. The sixtieth session begins Sept. 9, 1925, and ends May 25, 1926.

ARKANSAS

Arkansas, population 1,752,204, has one medical college, the Medical Department of the University of Arkansas, located in Little Rock, a city of 65,142.

To secure licenses to practice medicine in Arkansas, students must complete two years of collegiate work, including college courses in physics, chemistry, biology and a modern language, before beginning the study of medicine.

Little Rock

University of Arkansas Medical Department, Markham and Center Streets.—Organized in 1879 as the Medical Department of Arkansas Industrial University. It assumed the present title in 1899. In 1911 the College of Physicians and Surgeons united with it and the new school was made an integral part of the University of Arkansas. The first class was graduated in 1880. Clinical teaching was suspended in 1918 but resumed in 1923. The faculty consists of 23 professors and 48 lecturers and assistants, total 71. The curriculum embraces four years of thirty-four weeks each. Entrance requirements are two years of collegiate work in addition to a four-year high school course. The fees for the four years, respectively, for residents of Arkansas are $80, $85, $70, and $95; nonresidents are charged $100 additional each year. The Dean is Dr. Morgan Smith. The total registration for 1924-1925 was 133; graduates, 23. The forty-seventh session begins Sept. 17, 1925, and ends June 3, 1926.

CALIFORNIA

California, population 3,426,861, has three medical colleges. Two are located in San Francisco, a city of 506,676 inhabitants. They are Stanford University School of Medicine and the College of Medicine of the University of California. The College of Medical Evangelists is located at Loma Linda and Los Angeles, the latter city having a population of 576,673.

To secure a license to practice medicine in California under the "physician's and surgeon's" certificate, students must complete at least a year of work of college grade including courses in physics, chemistry and biology before beginning the second half of the second year in the study of medicine.

Berkeley-San Francisco

University of California Medical School, University Campus, Berkeley; Second and Parnassus Avenues, San Francisco.—Organized in 1863 as the Toland Medical College. The first class graduated in 1864. In 1872 it became the Medical Department of the University of California. In 1909 the College of Medicine of the University of Southern California, at Los Angeles, by legislative enactment, became a clinical department. This Los Angeles portion was changed to a graduate school in 1914. In 1915 the Hahnemann Medical College of the Pacific was merged, and elective chairs in homeopathic materia medica and therapeutics were provided. Three years of collegiate work are required for admission. The work of the first year and a half is given at Berkeley and the work of the last two and a half years at San Francisco. The faculty is composed of 68 professors and 158 associates and assistants, a total of 226. The course covers four years of eight months each, and an additional fifth year consisting of an internship in a hospital or of special work in a department of the medical school. Fees for the four years, respectively, for residents of California are $290, $248, $235 and $225; nonresidents are charged $300 additional each year. The Dean is Dr. L. S. Schmitt. Total registration for 1924-1925 was 209; graduates, 49. The fifty-third session begins Aug. 14, 1925, and ends May 12, 1926.

Loma Linda-Los Angeles

College of Medical Evangelists.—Organized in 1909. The first class graduated in 1914. The laboratory departments are at Loma Linda; the clinical departments at Los Angeles on property bounded by Boyle, Michigan, Bailey and New Jersey streets. The faculty is composed of 50 professors and 111 associates, assistants and instructors, a total of 161. The course extends over five years of nine months each —the fifth year consisting of an internship in a hospital, or of special work in a department of the Medical School. The work of the first two years is given at Loma Linda and of the third and fourth years at Los Angeles. Two years of college work are required for admission. The total fees for the four years, respectively, are $221, $263, $258 and $255. The President is Dr. Newton Evans, Loma Linda, Calif., and the Dean of the Clinical Division is Dr. P. T. Magan, Los Angeles. The total registration for 1924-1925 was 250; graduates, 67. The seventeenth session begins Sept. 6, 1925, and ends May 30, 1926.

San Francisco-Stanford University

Stanford University School of Medicine, Campus, Sacramento and Webster Streets, San Francisco.—Organized in 1908 when, by an agreement, the interests of Cooper Medical College were taken over. The first class was graduated in 1913. The faculty consists of 70 professors and 95 lecturers, assistants, etc., a total of 165. Three years of collegiate work are required for admission. The course covers four years of nine months each, plus a fifth year of practice or intern work. The total fees for each of the first four years are $261. The Dean is Dr. W. Ophüls, San Francisco. The total registration for 1924-1925 was 169; graduates, 28. The sixteenth session begins Oct. 1, 1925, and ends June 6, 1926.

COLORADO

Colorado, with a population of 939,629, has one medical college, the University of Colorado School of Medicine. It is located in Denver, which has a population of 256,491.

The Colorado State Board of Medical Examiners will register without further examination graduates of medical colleges in good standing who present licenses issued after examination by any other licensing board. The law permits any one, graduate or nongraduate, to try the board's written examination.

Boulder-Denver

University of Colorado School of Medicine.—Organized in 1883. Classes were graduated in 1885 and in all subsequent years except 1898 and 1899. Denver and Gross College of Medicine were merged Jan. 1, 1911. The faculty embraces 42 professors and 31 lecturers, instructors and assistants, a total of 73. The work embraces a graded course of four years of nine months each and a year's internship in a hospital. The entrance requirements are two years of college work counting toward a degree in arts in an accredited college or university. The fees for residents of *Colorado, for* each of the four years are, respectively, $206, $221, $191 and $181. Nonresidents pay $105 more each year. *The*

Dean is Dr. Maurice H Rees The total registration for 1924 1925 was 148, graduates, 30 The forty-fourth session begins Sept. 28, 1925, and ends June 4, 1926.

CONNECTICUT

Connecticut, with a population of 1,380,631, has one medical college, Yale University School of Medicine, located in New Haven, population 162,537.

Students who desire to practice medicine in Connecticut will not be eligible unless, prior to entering the study of medicine, they complete, in addition to an accredited four-year high school education, at least nine months of collegiate work including college courses in physics, chemistry and general biology.

New Haven

Yale University School of Medicine, 150 York Street and at corner Congress Avenue and Cedar Street —Chartered in 1810 as the Medical Institution of Yale College Organized in 1812; instruction began in 1813, first class graduated in 1814. A new charter in 1879 changed the name to the Medical Department of Yale College In 1884, the Connecticut Medical Society surrendered such authority as had been granted by the first charter. In 1887, Yale College became Yale University. The faculty consists of 47 professors and 92 lecturers and assistants, a total of 139. The requirements for admission are three years of collegiate work plus evidence of satisfactory completion of courses in general physics, general inorganic chemistry, qualitative analysis, general biology, organic chemistry and physical chemistry or laboratory physics, all reasonably equivalent to the courses in these subjects in Yale University. The student also must have two years of French or German The course covers four years of nine months each The fees for the four years, respectively, are $305, $300, $300 and $320 The Dean is Dr Milton C. Winternitz. The total registration for 1924 1925 was 186; graduates, 45. The one hundred and thirteenth session begins Oct. 1, 1925, and ends June 6, 1926

DISTRICT OF COLUMBIA

The District of Columbia, population 437,571, has three medical colleges: George Washington University Medical School, Georgetown University School of Medicine and Howard University School of Medicine.

Washington

George Washington University Medical School, 1335 H Street, N W —Organized in 1825 as the Medical Department of Columbian College. Also authorized to use the name National Medical College. Classes were graduated in 1826 and in all subsequent years, except 1834 to 1838, and 1861 to 1863, inclusive. The original title was changed to Medical Department of Columbian University in 1873. In 1903 it absorbed the National University Medical Department In 1904, by an act of Congress, the title of George Washington University was granted to the institution The faculty is composed of 53 professors and 100 instructors, demonstrators and assistants, a total of 153. Two years of collegiate work are required for admission The course covers four years of thirty two weeks each The fees for the four years, respectively, are $295, $292, $292, and $292 The Dean is Dr. William C. Borden The total registration for 1924-1925 was 253, graduates, 46. The one hundred and first session begins Sept. 23, 1925, and ends June 9, 1926

Georgetown University School of Medicine, 920 H Street, N -W.—Organized in 1851 The first class graduated in 1852 The faculty contains 25 professors, 76 instructors and assistants, total, 101 Two years of collegiate work are required for entrance. The course of study covers four terms of eight and one half months each. The fees for each of the four sessions, respectively, are $215, $200, $200 and $210. The Dean is Dr George M Kober The registration for 1924 1925 was 229, graduates, 42. The seventy fifth session begins Sept. 4, 1925, and ends June 9, 1926

Howard University School of Medicine, Fifth and W Streets, N W —Chartered in 1867. Organized in 1869. The first class graduated in 1871 Colored students compose a majority of those in attendance. The faculty comprises 28 professors and 28 lecturers and assistants, 56 in all The admission requirements are two years of collegiate work, including physics, chemistry, botany and zoology, English and two years of French or German The course covers four years of thirty three weeks each The fees of each of the four sessions, respectively, are $163, $158, $158 and $165 The Dean is Dr. Edward A. Balloch Registration for 1924 1925 was 247, graduates, 72. The fifty-eighth session begins Oct 1, 1925, and ends June 11, 1926

GEORGIA

Georgia, population 2,895,832, has two medical colleges, University of Georgia Medical Department, located in Augusta, population 52,548, and the Emory University School of Medicine in Atlanta, a city of 200,616

In order to secure a license to practice medicine in Georgia, students must complete two years of work in an approved college of liberal arts and sciences, including courses in physics, chemistry and biology, prior to entering on the study of medicine

Atlanta

Emory University School of Medicine. 98 N. Butler Street.—Organized in 1854 Classes graduated 1855 to 1861, when it suspended. Reorganized in 1865. A class graduated in 1865 and each subsequent year except 1874 In 1898 it merged with the Southern Medical College (organized in 1878), taking the name of Atlanta College of Physicians and Surgeons. In 1913 it merged with the Atlanta School of Medicine (organized in 1905), reassuming the name of Atlanta Medical College Became the Medical Department of Emory University in 1915; assumed present title in 1917 Two years of collegiate work are required for admission The faculty has 17 professors and 110 associates and assistants, a total of 127. The course of study is four years of thirty three weeks each The fees for each of the four years, respectively, are $253, $233, $228 and $253. The Dean is Dr. Russell H. Oppenheimer. Total registration for 1924 1925 was 217; graduates, 60. The next session begins Sept. 29, 1925, and ends June 8, 1926

Augusta

University of Georgia Medical Department, University Place.—Organized in 1828 as the Medical Academy of Georgia, the name being changed to the Medical College of Georgia in 1829 Since 1873 it has been known as the Medical Department of the University of Georgia. Entire property transferred to the university in 1911. Classes were graduated in 1833 and in all subsequent years except 1862 and 1863. The faculty includes 14 professors and 43 assistants, 61 in all Two years of collegiate work are required for entrance. The course is four years of thirty four weeks each The fees for each of the four years, respectively, are $115, $60, $60 and $60 for residents of Georgia and $300 each year for nonresidents. The Dean is Dr. William H. Goodrich. The total registration for 1924-1925 was 140; graduates, 25. The ninety fourth session begins Sept. 4, 1925, and ends May 31, 1926

ILLINOIS

Illinois, population 6,485,280, has five medical colleges, one of which gives instruction at night, all located in Chicago, a city of 2,701,705 inhabitants. They are as follows: Rush Medical College, Northwestern University Medical School, University of Illinois College of Medicine, Loyola University School of Medicine and the Chicago Medical School.

To be eligible for license to practice medicine in Illinois, students must complete two years of collegiate work including courses in physics, chemistry, biology and a modern language before entering on the study of medicine. In addition to their four year course in medicine they must complete also a year's internship in a hospital.

Chicago

Rush Medical College —Founded in 1837; organized in 1843; was the medical department of Lake Forest University from 1887 until 1898, when it became affiliated with the University of Chicago. The first class graduated in 1844 The faculty is composed of 128 professors, 156 associates, instructors, etc , a total of 284 The requirements for admission are three years of college work, including courses in college chemistry, physics and biology, and a reading knowledge of German or French. Classes are limited to 100 students in each of the freshman and sophomore classes, and to 140 students in each of the clinical years. No application for admission is accepted after June 1 The school operates under the "quarter system" in which the year is divided into four quarters of twelve weeks each, the completion of the work of three of these quarters gives credit for a college year The course covers four years of eight and a half months each, and a fifth year, consisting of a hospital internship or of a fellowship in one of the departments. All freshman and sophomore studies are given at the University of Chicago. The clinical years are given in the building at the corner of Wood and Harrison Streets The tuition fees for each of the four years, respectively, are $280, $270, $270 and $290. The Dean is Dr Ernest E. Irons Total registration for 1924-1925 was 531, graduates, 133 The eighty first session begins Oct. 1, 1925, and ends June 16, 1926

Northwestern University Medical School, 2421 South Dearborn Street —Organized in 1859 as the Medical Department of Lind University First class graduated in 1860 In 1864 it became independent as the Chicago Medical College It united with Northwestern University in 1869, but retained the name of Chicago Medical College until 1891, when the present name was taken Became an integral part of Northwestern University in 1905 The faculty comprises 66 professors and 122 lecturers and assistants, a total of 188 The requirements for admission are such as will admit to the College of Liberal Arts of Northwestern University, plus two years of college work, including courses in physics, chemistry, biology and a modern language The course covers four years of eight months each and a year's internship in an approved hospital The fees for the four years, respectively, are $244, $244, $245 and $260 The Dean is Dr Irving S Cutter. The total registration for 1924 1925 was 428, graduates, 105 The sixty sixth session begins Sept. 29, 1925, and ends June 2, 1926

University of Illinois College of Medicine, 508 S. Honore Street —Organized in 1882 as the College of Physicians and Surgeons The first class graduated in 1883 It became the Medical Department of the University of Illinois by affiliation in 1897 and an integral part in 1910 The relationship with the university was canceled in June, 1912, but restored in March, 1913, when the present title was assumed. Two years of collegiate work are required for admission The curriculum covers four years of thirty-three weeks each, and a year's internship in an approved hospital. The faculty is composed of 76 professors, 137 assistants and instructors, a total of 213. The tuition fees are $165 each year for resident students and $35 extra for nonresidents. The Dean is Dr. Albert C. Eycleshymer. The total registration for 1924-1925 was 460; graduates, 95. The forty-fourth session begins Oct. 5, 1925, and ends June 12, 1926.

Loyola University School of Medicine, 706 S. Lincoln St., Chicago.—Organized in 1868 as the Bennett College of Eclectic Medicine and Surgery. Eclecticism dropped and title of Bennett Medical College assumed in 1909. First class graduated in 1870, and a class graduated each subsequent year. Absorbed the Illinois Medical College in 1910 and the Reliance Medical College in 1911. In 1910 it became by affiliation the School of Medicine of Loyola University; the university assumed full control in 1915. Took over by purchase the Chicago College of Medicine and Surgery in 1917. Two years of college work are required for admission. The course of study is five years including an internship in a hospital. The faculty is composed of 61 professors, 52 assistants and instructors, a total of 113. The total fees are $300 each ear. The Dean is Dr. Louis D. Moorhead. The total enrolment for 924-1925 was 329; graduates, 55. The next session begins Oct. 1, 1925, nd ends June 9, 1926.

Chicago Medical School, an afternoon and night school, located t 3832 Rhodes Avenue.—Organized in 1911 as the Chicago Hospital ollege of Medicine; chartered in 1912. In December, 1917, the classes f the Jenner Medical College were transferred to it. A year's interhip in a hospital is required for graduation. Total registration for 924-1925 was 129; graduates, 0. *Official reports state that the diplomas rom this college are not recognized by the licensing boards of forty-six tates.*

INDIANA

Indiana, population 2,930,390, has one medical college, the Indiana University School of Medicine, located at Indianapolis, a city of 314,194 people, except that the work of the first year is offered also at Bloomington, the seat of the university.

Students who intend to practice medicine in Indiana must complete two years of collegiate work, in addition to an accredited four-year high school course, prior to beginning the study of medicine.

Bloomington and Indianapolis

Indiana University School of Medicine.—Organized in 1903, but did not give all of the work of the first two years of the medical course until 1905. In 1907, by union with the State College of Physicians and Surgeons, the complete course in medicine was offered. In 1908 the Indiana Medical College, which was formed in 1905 by the merger of the Medical College of Indiana (organized in 1878), the Central College of Physicians and Surgeons (organized in 1879), and the Fort Wayne College of Medicine (organized in 1879), merged into it. The first class was graduated in 1908. The faculty consists of 73 professors and 193 lecturers, associates and assistants, a total of 266. Two years of collegiate work are required for admission. The work of the first year is emphasized only at Bloomington. The work of the other three years is all at Indianapolis. The fees each year are $175 for residents of Indiana and $250 for nonresidents. Matriculation fee, $15; microscope fee, $5 to $7.50 per semester. A fifth optional intern year leading to the "M.D. cum laude" has been added. The Assistant Dean at Bloomington is Dr. B. D. Myers; the Dean is Dr. Charles P. Emerson, Indianapolis. The total registration for 1924-1925 was 379; graduates, 88. The next session begins Sept. 14, 1925, and ends June 9, 1926.

IOWA

Iowa, population 2,404,021, has one medical college, the College of Medicine of the State University of Iowa, located in Iowa City, population 11,267.

Students who desire to practice medicine in Iowa must complete two years of work in an approved college of liberal arts prior to beginning the study of medicine, this preliminary college work to have included courses in physics, chemistry, biology and a foreign language; they must also have completed a year's internship in an approved hospital.

Iowa City

State University of Iowa College of Medicine, University Campus.—Organized in 1869. First session began in 1870. First class graduated in 1871. Absorbed Drake University College of Medicine in 1913. The faculty is made up of 42 professors, 55 lecturers, demonstrators and assistants, a total of 97. Two years of college work, including courses in physics, chemistry, biology, French or German and English, are required for admission. The course of study covers four years of thirty-four weeks each. The tuition fee is $186 each year for residents of Iowa and $350 for nonresidents, plus a matriculation fee of $10 and a graduation fee of $15. The Dean is Dr. Lee Wallace Dean, Iowa City. Total registration for 1924-1925 was 411; graduates, 76. The fifty-sixth session begins Sept. 21, 1925, and ends June 5, 1926.

KANSAS

Kansas, population 1,769,257, has one medical college. The School of Medicine of the University of Kansas gives its first two years in Lawrence, population 12,456, and the last two years in Kansas City, which with Kansas City, Mo., have a combined population of 433,261.

Students who desire to practice medicine in Kansas must complete at least two years of collegiate work including college courses in physics, chemistry and biology in addition to an accredited four-year high school course.

Lawrence and Kansas City

University of Kansas School of Medicine.—Organized in 1880. It offered only the first two years of the medical course until in 1905, when it merged with the Kansas City (Mo.) Medical College, founded in 1869, the College of Physicians and Surgeons, founded in 1894, and the Medico-Chirurgical College, founded in 1897. First class graduated in 1906. The clinical courses are given at Kansas City. Absorbed Kansas Medical College in 1913. The faculty, including lecturers and clinical assistants, numbers 113. The requirements for admission are two years of collegiate work. The course covers four years of nine months each. The total fees for residents of the state for each of the four years are, respectively, $125, $100, $106 and $110. For nonresidents the fees are $10 additional each year. The acting Dean is Dr. Harry Roswell Wahl. The total registration for 1924-1925 was 165; graduates, 32. The forty-sixth session begins Sept. 10, 1925, and ends June 8, 1926.

KENTUCKY

Kentucky, population 2,416,630, has one medical college, the University of Louisville Medical Department, situated in Louisville, a city of 234,891 inhabitants.

To be eligible for license to practice medicine in Kentucky, students must complete two years of college work, including courses in physics, chemistry, biology and a modern language, prior to beginning the study of medicine.

Louisville

University of Louisville School of Medicine, First and Chestnut Streets.—Organized in 1837 as Louisville Medical Institute. The first class graduated in 1838, and a class graduated in each subsequent year except in 1863. In 1846 name changed to University of Louisville Medical Department. In 1907 it absorbed the Kentucky University Medical Department; in 1908 the Louisville Medical College, the Hospital College of Medicine and the Kentucky School of Medicine. In the fall of 1922 it became more closely correlated in the University of Louisville and changed its name to the University of Louisville School of Medicine. About the same time it assumed complete control of the professional side of the Louisville City Hospital on a twelve months' basis, under an agreement with the City Administration, the Dean becoming Chairman of the Hospital Staff Executive Committee and the Professor of Medicine the Hospital Staff Executive, with the Hospital Superintendent as business manager and secretary. Two years of college work required for admission. It has a faculty of 25 professors, 13 associate and assistant professors, 3 lecturers, 40 instructors and 23 assistants, a total of 109. Students limited to 75 Freshmen, 65 Sophomores, 60 Juniors and 60 Seniors. Course covers four years of thirty-two weeks each exclusive of vacations and examinations. Fees for four years are, respectively, $260, $260, $270 ad $290. The Dean is Dr. Stuart Graves. Total registration for 1924-1925 was 276; graduates, 63. Next session begins Sept. 14, 1925, and ends June 17, 1926.

LOUISIANA

Louisiana, having a population of 1,798,509, contains one medical college, the School of Medicine of the Tulane University of Louisiana, situated in New Orleans, a city of 387,219.

Students who desire to practice medicine in Louisiana must complete, at an approved college or university, two years of college work, including biology, physics, chemistry and a modern language, before entering on the study of medicine.

New Orleans

Tulane University of Louisiana School of Medicine, University Campus and 1551 Canal Street.—Organized in 1834 as the Medical College of Louisiana. Classes were graduated in 1835 and in all subsequent years except 1863-1865, inclusive. It was transferred to the Medical Department of the University of Louisiana in 1847 and became the Medical Department of the Tulane University of Louisiana in 1884. Present name in 1913, when it became the School of Medicine of the College of Medicine of the Tulane University of Louisiana. The faculty has 32 professors and 110 assistant professors, instructors and assistants, a total of 142. The course covers four years of thirty-four weeks each. Two years of collegiate work are required for admission. Total fees for each of the four years, respectively, are $245, $235, $220 and $250. The Dean is Dr. Charles C. Bass. The total registration for 1924-1925 was 383; graduates, 87. The ninety-first session begins Sept. 24, 1925, and ends June 9, 1926.

MARYLAND

Maryland, with a population of 1,449,661, contains two medical colleges, located in Baltimore, a city with 733,826 inhabitants. They are as follows: Johns Hopkins University Medical Department, and the University of Maryland School of Medicine and College of Physicians and Surgeons.

To be eligible to practice medicine in Maryland, students, in addition to a four-year high school education, must complete at least two years of college work including courses in physics, chemistry, biology and French or German, prior to beginning the study of medicine.

Baltimore

Johns Hopkins University Medical Department, Washington and Monument Streets.—Organized in 1893. The first class graduated in 1897. The faculty consists of 55 professors and 182 clinical professors, etc., a total of 237. The requirements for admission demand that the applicant either has (*a*) completed the chemical-biologic course which leads to the A.B. degree in the university, or (*b*) graduated at an approved college or scientific school and has a knowledge of French and German (two years each of college instruction), physics and biology, such as may be obtained from a year's course, and a three years' course in chemistry. The course extends over four years of eight and one-half months each. The total fees for each of the four years are, respectively, $310, $310, $310 and $317. The Dean is Dr. Lewis H. Weed. Total registration for 1924-1925 was 294; graduates, 78. The thirty-third session begins Sept. 28, 1925, and ends June 8, 1926.

University of Maryland School of Medicine and the College of Physicians and Surgeons, Lombard and Greene Streets.—Organized in 1807 as the College of Medicine of Maryland. The first class graduated in 1810. In 1812 it became the University of Maryland School of Medicine. Baltimore Medical College was merged into it in 1913. In 1915 the College of Physicians and Surgeons was merged and the present name assumed. The faculty consists of 80 professors and 125 instructors and assistants, a total of 80. Two years of college work are required for admission. The course covers four years of eight months each. The total fees are $270 each year for residents of the state; $320 each year for nonresidents. The Dean is Dr. J. M. H. Rowland. Total registration for 1924-1925 was 354; graduates, 83. The one hundred and nineteenth session begins Sept. 28, 1925, and ends June 5, 1926.

MASSACHUSETTS

Massachusetts, population 3,852,356, has five medical colleges: Medical School of Harvard University, Boston University School of Medicine, Tufts College Medical School, College of Physicians and Surgeons and the Middlesex College of Medicine and Surgery. They are all situated in Boston, a city of 748,060, except the last named, which is in Cambridge, a city of 109,694.

Boston

Medical School of Harvard University, 240 Longwood Avenue.—Organized in 1782. The first class graduated in 1788. It has a faculty of 104 professors and 218 instructors and assistants, a total of 322. Candidates for admission must present a college degree or two years of work leading to such a degree with standing in the upper third of the class. The college work must include a year of physics, biology, general chemistry, a half year of organic chemistry, and a reading knowledge of French or German. The total fee for each of the four years is $300 plus $5 the first year for matriculation. The Dean is Dr. David L. Edsall. The total registration for 1924-1925 was 506; graduates, 126. The one hundred and forty-third session begins Sept. 28, 1925, and ends June 24, 1926.

Boston University School of Medicine, 80 East Concord Street.—Organized in 1873. In 1874 the New England Female Medical College, founded in 1848, was merged into it. The first class graduated in 1874. Became nonsectarian in 1918. Two years of collegiate work are required for admission. The faculty includes 21 professors, 93 associates, etc., making a total of 114. The course covers four years of thirty-two weeks each. Total fees for each of the four years, respectively, are $306, $306, $306 and $316. The Dean is Dr. Alexander S. Begg. Total registration for 1924-1925 was 210; graduates, 50. The fifty-third session begins Sept. 21, 1925, and ends June 14, 1926.

Tufts College Medical School, 416 Huntington Avenue.—Organized in 1893 as the Medical Department of Tufts College. The first class graduated in 1894. It has a faculty of 47 professors and 114 assistants, lecturers, etc., a total of 161. Two years of collegiate work are required for admission. The course covers four years of eight months each. The total fees for each of the four years are $305, $300, $300 and $310. The Dean is Dr. Stephen Rushmore. Total registration for 1924-1925 was 476; graduates, 104. The thirtieth session begins Sept. 16, 1925, and ends May 29, 1926.

College of Physicians and Surgeons, 517 Shawmut Avenue.—Organized in 1880. The first class graduated in 1882. Total attendance of medical students, 1924-1925 was about 20. There were 4 graduates. *This college has been reported not recognized by the Massachusetts Medical Society and by the licensing boards of forty-seven states.*

Cambridge

Middlesex College of Medicine and Surgery, Cambridge.—Organized in 1914 under the charter of the Worcester Medical College, which became extinct in 1859. A class was graduated in 1915 and each subsequent year. Was closely related in its interests with an osteopathic college and granted a liberal advanced standing for work done in osteopathic colleges. No students or graduates were reported for the session of 1924-1925. *This college has been reported as not recognized by licensing boards of forty-seven states.* In connection with the medical licensure investigation in Connecticut in 1924 a drastic report in regard to this college was issued by the Special Grand Jury, March 14, 1924. (See The Journal, March 29, 1924, page 1062.)

MICHIGAN

Michigan, population 3,668,412, has two medical colleges: the University of Michigan Medical School, located at Ann Arbor, a city of 19,516 people, and the Detroit College of Medicine and Surgery, located at Detroit, a city of 993,678 inhabitants.

Students who desire to practice medicine in Michigan, in addition to an accredited four-year high school education, must complete two years of work in an approved college of liberal arts, including college courses in physics, chemistry, biology and French or German, prior to beginning the study of medicine. Candidates must also have completed an internship in a hospital.

Ann Arbor

University of Michigan Medical School.—Organized in 1850 as the University of Michigan Department of Medicine and Surgery. The first class graduated in 1851. Present title assumed in 1915. It has a faculty composed of 22 professors, 23 assistant and associate professors and 110 associates, instructors, etc., a total of 155. The entrance requirements are two years of college work, including courses in chemistry, physics and biology, with laboratory work, and a reading knowledge of French or German. The curriculum embraces four years of nine months each. The total fees for Michigan students are for men, $180 per year, and for women $175 per year, plus a matriculation fee of $10.00; for nonresidents, $80 per year additional. The matriculation fee for nonresidents is $25. The Dean is Dr. Hugh Cabot. The total registration for 1924-1925 was 533, graduates, 158. The seventy-sixth session begins Sept. 22, 1925, and ends June 14, 1926.

Detroit

Detroit College of Medicine and Surgery, 1516 St. Antoine St—Organized as the Detroit College of Medicine in 1885 by consolidation of Detroit Medical College, organized in 1868, and the Michigan College of Medicine, organized in 1880. Reorganized with present title in 1913. The first class graduated in 1886. In 1918 it became a municipal institution under the control of the Detroit Board of Education. Entrance requirements are two years of college work. The faculty embraces 34 professors, 95 lecturers, etc., a total of 129. The course covers four years of nine months each and a fifth hospital intern year. The total fees each year for residents of Detroit are $175; for nonresidents, $250. The Dean is Dr. W. H. MacCraken. The total registration for 1924-1925 was 208; graduates, 27. The forty-first session begins Oct. 1, 1925, and ends June 19, 1926.

MINNESOTA

Minnesota, population 2,387,125, contains one medical school, the University of Minnesota Medical School, situated in Minneapolis, a city of 380,582 inhabitants.

Students intending to practice medicine in Minnesota, in addition to an accredited four-year high school education, must complete two years of college work the equivalent of that done in the liberal arts department of the University of Minnesota, including courses in physics, chemistry and biology, prior to beginning the study of medicine.

Minneapolis

University of Minnesota Medical School.—Organized in 1883 as the University of Minnesota College of Medicine and Surgery, reorganized in 1888 by absorption of St. Paul Medical College and Minnesota Hospital College. The first class graduated in 1889. In 1908 the Minneapolis College of Physicians and Surgeons, organized in 1883, was merged. In 1909 the Homeopathic College of Medicine and Surgery was merged. Present title in 1913. The faculty includes 123 professors and 159 instructors and assistants, a total of 282. The curriculum covers four years of nine months each, and a year's internship in an approved hospital. The school is operated on the four-quarter plan. The entrance requirements are two years of university work, which must include six semester credits of rhetoric, eight semester credits of physics; thirteen credits of general chemistry, qualitative and quantitative analysis and organic chemistry; eight credits of zoology, and a reading of scientific French or German. Students are required to secure a degree of B.S. or A.B. before receiving the degree of Bachelor of Medicine (M.B.) which is granted at the end of the four-year course. The M.D. is conferred after a year of intern work or of advanced laboratory work has been completed. Classes are graduated three a year, in March, June and December. Total fees are $189 for residents and $219 for nonresidents, each year of three quarters. The Dean is Dr. E. P. Lyon. The total registration for 1924-1925 was 425; graduates, 105. The thirty-seventh session begins Sept. 28, 1925, and ends June 12, 1926. The summer quarter began June 22.

MISSISSIPPI

Mississippi, population 1,790,618, has one medical college, the Department of Medicine of the University of Mississippi, which is located at Oxford, a city of 2,150 inhabitants.

Students desiring to practice medicine in Mississippi, in addition to a standard four-year high school education, must complete two years of work in an approved college or university, including courses in physics, chemistry, biology and a modern language, before entering on the study of medicine.

Oxford

University of Mississippi School of Medicine.—Organized in 1903. Gives only the first two years of the medical course. In 1908 a clinical department was established at Vicksburg, but was discontinued in 1910 after graduating one class. The session extends over eight and a half months. Entrance requirements are two years of collegiate work. The total fees each year for residents are $163; for nonresidents, $50 per year additional. The faculty numbers 17. The Dean is Dr. J. O. Crider. The total registration for 1924-1925 was 64. The twenty-third session begins Sept. 16, 1925, and ends June 1, 1926.

MISSOURI

Missouri, population 3,404,055, has six medical colleges. The School of Medicine of the University of Missouri is at Columbia, a town of 10,392 people. St. Louis, population 772,897, contains three medical schools, viz., the School of Medicine of St. Louis University, Washington University Medical School, and the St. Louis College of Physicians and Surgeons. Kansas City, which, with Kansas City, Kansas, has a population of 433,261, has two colleges, the Kansas City College of Medicine and Surgery and the Kansas City University of Physicians and Surgeons. The last three are reported as not approved or reputable by the Missouri State Board of Health.

Columbia

University of Missouri School of Medicine.—Organized at St. Louis in 1845; was discontinued in 1855, but was reorganized at Columbia in 1872. Teaching of the clinical years was suspended in 1909. The faculty includes 15 professors and 13 assistant professors, lecturers, etc., a total of 28. The course covers two years of thirty-five weeks each. The entrance requirements are two years of college work including French or German, 8 hours; general zoology, 8 hours; physics, 8 hours; inorganic chemistry, 8 hours; organic chemistry, 5 hours, and general bacteriology, 3 hours. Total fees each year are $125 and $113. *Nonresidents of the state pay $10 per term extra.* The Dean is Dr. Guy L. Noyes. Total registration for 1924-1925 was 80. The next session begins Sept. 16, 1925, and ends June 5, 1926.

Kansas City

Kansas City College of Medicine and Surgery, Twenty-Third and Holmes Streets.—Organized in 1915 as an offshoot of the Eclectic Medical University, a Class C medical school, now extinct. It claims to be an eclectic college, but is reported not recognized as such by the National Eclectic Medical Association. No students or graduates were reported for 1924-1925. *Reported not recognized by the Missouri State Board of Health and by the licensing boards of forty-six other states,* no higher rating can be granted to it, pending an inspection, which it has refused. Was closely involved in the Missouri diploma mill scandal as shown by the drastic report regarding it issued by the Connecticut Special Grand Jury, March 14, 1924. (See The Journal, April 12, 1924, page 1219.)

Kansas City University of Physicians and Surgeons, 729 Troost Street.—Originally chartered in 1903 as the Central College of Osteopathy; charter amended in 1917, by which it obtained the right to grant degrees in medicine, and the name was changed to the Central College Medical Department. Present title in 1918. Very liberal advanced standing allowed for work done in osteopathic colleges; reported as still having osteopathic classes. No students or graduates were reported for 1924-1925. Rated Class C by the Council on Medical Education and Hospitals. *Reported not recognized by the licensing boards of Missouri and of forty-seven other states.*

St. Louis

Washington University School of Medicine, Kingshighway and Euclid Avenue.—Organized in 1842 as the Medical Department of St. Louis University. In 1835 it was chartered as an independent institution under the name of St. Louis Medical College. The first class graduated in 1843. In 1891 it became the Medical Department of Washington University. In 1899 it absorbed the Missouri Medical College. The faculty comprises 37 professors and 130 lecturers, instructors, etc., a total of 167. Two years of college work are required for admission, including courses in English, physics, chemistry and biology, and a reading knowledge of German or French. The course is four years of eight months each. The total fees for the four years are, respectively, $317, $312, $312 and $317. The Dean is Dr. McKim Marriott. The total registration for 1924-1925 was 291; graduates, 75. The next session begins Sept. 24, 1925, and ends June 10, 1926.

St. Louis University School of Medicine, 1402 South Grand Avenue.—Organized in 1901 as the Marion-Sims-Beaumont Medical College by union of Marion-Sims Medical College, organized in 1890, and Beaumont Hospital Medical College, organized in 1886. First class graduated in 1902. It became the Medical Department of St. Louis University in 1903. The faculty is composed of 78 professors and 171 lecturers and assistants, a total of 249. Two years of collegiate work are required for admission. The curriculum covers four years of thirty-two weeks each. The summer season is optional. The total fees are $320 each year. The Dean is Dr. Hanau W. Loeb. The total registration for 1924-1925 was 463; graduates, 94. The next session begins Oct. 1, 1925, and ends June 1, 1926.

St. Louis College of Physicians and Surgeons, Jefferson and Gamble Streets.—Organized in 1869. Classes graduated in 1870 and each subsequent year until 1873, when it suspended. Reorganized in 1879. Classes graduated in 1880 and subsequent years until 1915, when it merged with the Medical Department of the National University of Arts and Sciences. Reestablished in 1916. Registration during 1924-1925 was approximately 35; graduates, about 10. *This college is reported as not recognized by the licensing boards of Missouri and forty-seven others states.* This school was closely involved with the Missouri diploma mill ring which was exposed in 1923 as shown by the drastic report regarding it issued by the Connecticut Special Grand Jury, March 14, 1924. (See The Journal, April 5, 1924, page 1140.)

NEBRASKA

Nebraska, population 1,296,372, has two medical colleges, the University of Nebraska College of Medicine and the Creighton University College of Medicine, both in Omaha, population 191,601.

Omaha

Creighton University College of Medicine, Fourteenth and Davenport Streets.—Organized in 1892 as the John A. Creighton Medical College. Present title in 1921. The first class graduated in 1893. It has a faculty of 35 professors and 43 instructors, lecturers and assistants, a total of 78. Two years of collegiate work are required for admission. The course of study embraces four years of eight months each. The total fees each year for the four years are, respectively, $195, $190, $190 and $200. The Dean is Dr. Hermann von W. Schulte. Total registration for 1924-1925 was 171; graduates, 37. The forty-fourth session begins Sept. 24, 1925, and ends June 3, 1926.

University of Nebraska College of Medicine, Forty-Second Street and Dewey Avenue.—Organized in 1881 as the Omaha Medical College. The first class graduated in 1882. It became the Medical Department of Omaha University in 1891. In 1902 it affiliated with the University of Nebraska, with the present title. The first two years were given at Lincoln and the last two in Omaha until 1913, when all four years were transferred to Omaha. The faculty is composed of 48 professors and 63 lecturers and instructors, total 111. Two years of collegiate work are required for admission, including courses in physics, chemistry and zoology. The fees for each of the four years, respectively, are $180, $170, $160 and $160. The Dean is Dr. J. Jay Keegan. Total registration for 1924-1925, was 334; graduates, 103. The next session begins Sept. 21, 1925, and ends June 5, 1926.

NEW HAMPSHIRE

New Hampshire, population 443,083, has one medical college, located at Hanover, population 1,551.

Students desiring to practice medicine in New Hampshire, in addition to a four-year high school education, must complete at least two years of work in an approved college of liberal arts, prior to beginning the study of medicine.

Dartmouth Medical School.—Organized as New Hampshire Medical Institute in 1797. The first class graduated in 1798. It is under the control of the trustees of Dartmouth College. Clinical teaching was discontinued in 1914. The faculty is made up of 12 professors and 4 instructors, a total of 16. Three years of collegiate work are required for admission. The course covers nine calendar months in each year, or eight months of actual teaching. Candidates for the A.B. or B.S. degree in Dartmouth College may substitute the work of the first year in medicine for that of the senior year in the academic department. The fees for each year are $310. Dean, Dr. John M. Gile. The total registration for 1924-1925 was 39. The next session opens Sept. 16, 1925, and ends June 22, 1926.

NEW YORK

New York State, population 10,384,829, has nine medical colleges. Five of these, College of Physicians and Surgeons (Columbia University), Cornell University Medical College, the University and Bellevue Hospital Medical College, Long Island College Hospital and the New York Homeopathic Medical College and Flower Hospital, are located in New York City, population 5,620,048. Albany Medical College is located in Albany, a city of 113,344 people. The University of Buffalo Medical Department is situated in Buffalo, population 506,775. The College of Medicine, Syracuse University, is in Syracuse, a city of 171,717 inhabitants. The University of Rochester School of Medicine is located in Rochester, a city of 295,750 inhabitants.

Students who desire to practice in New York must complete two years of college work before entering on the study of medicine.

Albany

Albany Medical College, 58-64 Eagle Street.—Organized in 1838. The first class graduated in 1839. It became the Medical Department of Union University in 1873. In 1915 Union University assumed educational control. The faculty is composed of 24 professors and 76 instructors, assistants, etc., a total of 100. Two years of collegiate work, including college courses in physics, chemistry (including organic and analytic), biology, English, and a modern foreign language, are required for admission The curriculum covers four years of eight months each. The total fees for the four years, respectively, are $320, $305, $305 and $305 The Dean is Dr. Thomas Ordway. The total registration for 1924 1925 was 83; graduates, 16. The ninety fifth session begins Sept. 21, 1925, and ends June 14, 1926.

Buffalo

University of Buffalo Medical Department, High Street, near Main.—Organized in 1846. The first class graduated in 1847. It absorbed the Medical Department of Niagara University in 1898 The faculty is composed of 53 professors and 97 lecturers, assistants, etc., a total of 150. Two years of collegiate work, including college courses in physics, chemistry, biology, English and French or German are required for admission. The course covers four years of eight months each The total fees for each of the four years are $327, $317, $317 and $327. The Dean is Dr. C Sumner Jones. Total registration for 1924-1925 was 238; graduates, 51. The eightieth session begins Sept. 21, 1925, and ends June 9, 1926.

New York

Columbia University College of Physicians and Surgeons, 437 West Fifty-Ninth Street.—Organized in 1807 by the regents of the University of the State of New York as their medical department. The first class graduated in 1811. In 1860 it became, by affiliation, the Medical Department of Columbia College. It was made a permanent part of Columbia College by legislative enactment in 1891. That institution became Columbia University in 1896 The faculty is composed of 117 professors and 226 instructors, demonstrators, etc, a total of 343. Two years of collegiate work of 72 points, including courses in physics, chemistry, biology, English and either French or German, are required for admission. The work covers four years of eight months each. The Dean is Dr. William Darrach. The total fees for the four years, respectively, are $332, $332, $332 and $352 Total registration for 1924-1925 was 397; graduates, 93. The one hundred and eighteenth session begins Sept. 23, 1925, and ends June 2, 1926.

Cornell University Medical College, First Avenue and Twenty-Eighth Street, New York City, and Ithaca.—Organized in 1898 The first class was graduated in 1899. The work of the first year may be taken either in Ithaca or in New York The faculty is composed of 71 professors and 122 assistants, lecturers, instructors, etc, a total of 193. All candidates for admission must be graduates of approved colleges or scientific schools or seniors of approved colleges which will permit them to substitute the first year of this medical school for the fourth year of their college course and will confer on them the Bachelor degree on the completion of the year's work The candidate must also have a knowledge of physics, chemistry, biology, English and a modern language. The fees for each of the four years are, respectively, $345, $335, $335 and $350. The Dean is Dr Walter L Niles Total registration for 1924 1925 was 262; graduates, 57. The twenty eighth session begins Sept. 28, 1925, and ends June 10, 1926

Long Island College Hospital, 350 Henry Street, Brooklyn —Organized in 1858. The first class graduated in 1860 It has a faculty of 68 professors and 94 assistants, instructors, etc, a total of 162 Two years of collegiate work, including college courses in physics, chemistry and biology, are required for admission. The course covers four years of eight months each. The fees for the four years, respectively, are $360, $350, $375 and $380 The Dean is Prof Adam M Miller Total registration for 1924-1925 was 388, graduates, 97. The sixty-eighth session begins Sept 21, 1925, and ends June 8, 1926

New York Homeopathic Medical College and Flower Hospital, Eastern Boulevard, between Sixty-Third and Sixty-Fourth Streets —Organized in 1858. Incorporated in 1860 as the Homeopathic Medical College of the State of New York The title New York Homeopathic Medical College was assumed in 1869. Present title assumed in 1908 The first class graduated in 1861. The course covers four years of eight months each. It has a faculty of 45 professors and 47 lecturers and assistants, a total of 92 The total fees for the four years are respectively, $360, $350, $350 and $330 The Dean is Israel S Kleiner, Ph D Total registration for 1924 1925 was 186, graduates, 32 The sixty sixth session begins Sept 18, 1925, and ends May 8, 1926

University and Bellevue Hospital Medical College, 338 East Twenty Sixth Street —Organized in 1898 by the union of the New York University Medical College, organized in 1841, and the Bellevue Hospital Medical College, organized in 1861. It is the Medical Department of New York University. First class graduated in 1899 The faculty is composed of 78 professors, associate professors and assistant professors, and 111 lecturers, instructors, etc, in all, 189 The course covers four years of eight months each Entrance requirements are 72 semester hours of collegiate work in a registered college leading to a bachelor's degree, including courses in physics, chemistry and biology The fees for each of the four years, respectively, are $377, $379, $364 and $352 The Dean is Dr. Samuel A Brown Total registration for 1924-1925 was 421, graduates, 102 The next session begins Sept 16, 1925, and ends June 9, 1926.

Rochester

University of Rochester School of Medicine, Elmwood Ave.—Organized in 1925 as the Medical Department of the University of Rochester. The faculty is composed of 12 professors, 7 lecturers, assistants, instructors, etc, a total of 19. The work embraces a graded course of 4 years of 9 months each. Three years of collegiate work are required for admission. Twenty five students will be accepted to the first year class. The total fees for each year are $300 The Dean is Dr George H. Whipple The first session begins Sept. 17, 1925, and ends July 21, 1926.

Syracuse

Syracuse University College of Medicine, 307 311 Orange Street.—Organized in 1872, when the Geneva Medical College, chartered in 1834, was removed to Syracuse, under the title "The College of Physicians and Surgeons of Syracuse University." Present title assumed in 1875, when a compulsory three year graded course was established. The first class graduated in 1873 and a class graduated each subsequent year. In 1889 the amalgamation with the university was made complete. Course extended to four years in 1896. The faculty is composed of 28 professors and 88 associate and assistant professors, lecturers and instructors, a total of 116 Two years of a recognized college course are required for admission. The course covers four years of thirty-four weeks each. The fees for each of the first three years are $335, for the fourth year $345. The Dean is Dr. Herman G. Weiskotten. The total enrolment for 1924-1925 was 183; graduates, 43. The fifty-fifth session begins Sept. 21, 1925, and ends June 14, 1926.

NORTH CAROLINA

North Carolina, population 2,559,123, has two medical schools, each of which gives only the first two years of the medical course. The School of Medicine of the University of North Carolina is located at Chapel Hill, population 1,483. Wake Forest College School of Medicine is at Wake Forest, population 1,425.

Students intending to practice medicine in North Carolina must complete two years of college work including courses in physics, chemistry and biology in addition to 14 units of high school work before beginning the study of medicine.

Chapel Hill

University of North Carolina School of Medicine.—Organized in 1890. Until 1902 this school gave only the work of the first two years, when the course was extended to four years by the establishment of a department at Raleigh. The first class graduated in 1903. A class was graduated each subsequent year, including 1910, when the clinical department at Raleigh was discontinued. Two years of collegiate work are required for admission. The faculty is composed of 9 professors and 4 lecturers, assistants, etc., a total of 13 The fees for each year are $195. The Dean is Dr. I. H. Manning. The total registration for 1924 1925, was 77 The fortieth session begins Sept. 17, 1925, and ends June 4, 1926.

Wake Forest

Wake Forest College School of Medicine.—This school was organized in 1902 The faculty, including the professors of chemistry, physics and biology, numbers 10 professors and 6 assistants. Only the first two years of the medical course are offered After the completion of freshman and sophomore college work and two years of medicine, a certificate will be given. The B S. degree in medicine will be given only after completion of three years of college work and two years of medicine. Each annual course extends over nine months. The fees for each year aggregate $200. The Dean is Dr. Thurman D Kitchin. The total registration for 1924-1925 was 49. The twenty-fourth session begins Sept. 15, 1925, and ends June 4, 1926.

NORTH DAKOTA

North Dakota, population 645,680, has one medical college, the School of Medicine of the University of North Dakota, which is situated at University, a suburb of Grand Forks, a city of 14,010 people. It gives only the first two years of the medical course.

Students intending to practice medicine in North Dakota, in addition to a four-year high school education, must complete two years of work in an approved college of liberal arts including courses in Latin, physics, chemistry, botany and zoology, prior to beginning the study of medicine, and must show evidence of having spent at least one year as an intern in a hospital.

University

University of North Dakota School of Medicine —Organized in 1905. Offers only the first two years of the medical course. Two-years' work in a college or liberal arts is required for admission. The fees are about $60 each year. The faculty consist of 6 professors and 9 instructors, a total of 15 The Dean is Dr. H. E French. The total registration for 1924-1925 was 44 The twentieth session begins Sept. 19, 1925, and ends June 15, 1926

OHIO

Ohio, population 5,759,394, has four medical colleges. Two of these, the Medical College of the University of Cincinnati and the Eclectic Medical College, are located in Cincinnati, a city of 401,247 inhabitants Cleveland, population 796,841, contains one medical school, Western Reserve University School of Medicine. Columbus, population 237,031, contains the Ohio State University College of Medicine.

Cincinnati

University of Cincinnati College of Medicine, Eden Avenue, Cincinnati General Hospital.—Organized in 1909 by the union of the Medical College of Ohio (founded in 1819) with the Miami Medical College (founded in 1852). The Medical College of Ohio became the Medical Department of the University of Cincinnati in 1896. Under a similar agreement, March 2, 1909, the Miami Medical College also merged into the University, when the title of Ohio-Miami Medical College of the University of Cincinnati was taken. Present title assumed in 1915. Two years of college work are required for admission. The faculty consists of 80 professors and 125 associates, assistants, etc., a total of 205. The course covers four years of eight months each. In 1926 a year's internship in an approved hospital will be required. The fees for each of the four years are $320. The Dean is Dr. Arthur C. Bachmeyer. The total registration for 1924-1925 was 253; graduates, 65. The next session begins Sept. 21, 1925, and ends June 12, 1926.

Eclectic Medical College, 630 West Sixth Street.—Organized in 1833 at Worthington as the Worthington Medical College. Removed to Cincinnati in 1843. In 1845 it was chartered as the Eclectic Medical Institute. In 1857 the American Medical College, organized in 1839, was merged into it, and in 1859 the Eclectic College of Medicine and Surgery, organized in 1856, was merged into it. In 1910 it assumed its present title. Classes were graduated in 1833 and in all subsequent years except 1839 to 1843, inclusive. It has a faculty of 29 professors and 23 lecturers and assistants, a total of 52. Two years of college work are required for admission. The course covers four years of eight months each. The total fees for the four years, respectively, are $220, $210, $210 and $210. The Dean is Dr. R. L. Thomas. Total registration for 1924-1925 was 148; graduates, 38. The next session begins Sept. 17, 1925, and ends May 17, 1926.

Cleveland

Western Reserve University School of Medicine, 2109-15 Adelbert Road.—Organized in 1843 as the Cleveland Medical College. The first class graduated in 1844. It assumed the present title in 1881. In 1910 the Cleveland College of Physicians and Surgeons was merged. The faculty includes 19 professors and 150 lecturers, assistants, etc., a total of 169. The curriculum embraces three years of eight and one-half months each and one year of eleven months. Three years of college work are required for admission. The total fees for each of the four years are, respectively, $275, $260, $250 and $260. The Dean is Dr. C. A. Hamann. The total registration for 1924-1925 was 209; graduates, 40. The eighty-third session begins Oct. 1, 1925, and ends June 17, 1926.

Columbus

Ohio State University College of Medicine, 710 North Park Street.—Organized in 1907 as the Starling-Ohio Medical College by the union of Starling Medical College (organized 1847) with the Ohio Medical University (organized 1890). In 1914 it became an integral part of the Ohio State University with its present title. The faculty consists of 48 professors and 65 lecturers, demonstrators, etc., a total of 113. Two years of collegiate work are required for admission. The course covers four years of 34 weeks each. Tuition fees are $180 each year for residents of Ohio; for nonresidents, the fees are $285. The Dean is Dr. Eugene F. McCampbell. The total registration for 1924-1925 was 325; graduates, 89. The next session begins Sept. 29, 1925, and ends June 15, 1926.

OKLAHOMA

Oklahoma, population 2,028,283, has one medical college, the School of Medicine of the University of Oklahoma. The work of the first and second years is given on the academic campus at Norman, a city of about 5,004 inhabitants. The work of the third and fourth years is given in Oklahoma City, which has a population of 91,295 and which is eighteen miles north of Norman.

Students intending to practice medicine in Oklahoma, in addition to a four-year high school education, must complete two years of work in an approved college of liberal arts, including courses in physics, chemistry, biology and a modern language prior to beginning the study of medicine.

Norman and Oklahoma City

University of Oklahoma School of Medicine.—Organized in 1900. Gave only the first two years of the medical course at Norman until 1910, when a clinical department was established at Oklahoma City. The first class graduated in 1911. It has a faculty of 45 professors and associate professors, 38 assistant professors and instructors, a total of 83. Two years of college work are required for admission. The course is four years of nine months each. An optional course of six years is offered for the degrees of B.S. and M.D. The total fees for the four years are, respectively, $63, $65, $70 and $21. For students residing outside the State of Oklahoma there is a tuition fee of $200 per year. The Dean is Dr. LeRoy Long, School of Medicine Building, Third and Stiles Street, Oklahoma City, Okla. The total registration for 1924-1925 was 170; graduates, 29. The twenty-sixth session begins Sept. 17, 1925, and ends June 8, 1926.

OREGON

Oregon, population 783,389, has one medical college, the University of Oregon Medical School, located in Portland, a city of 258,288 population.

Portland

University of Oregon Medical School, Marquam Hill.—Organized in 1887. The first class graduated in 1888, and a class graduated each subsequent year except 1898. The Willamette University Medical Department was merged in 1913. It has a faculty of 54 professors and 90 lecturers, assistants, etc., a total of 144. Entrance requirements are three years of college work or its equivalent. The course is four years of thirty-four weeks each. The total fees for the four years are, respectively, $195, $190, $190 and $190 for residents of Oregon, and $60 per year additional for nonresidents. The Dean is Dr. Richard B. Dillehunt. The total registration for 1924-1925 was 210; graduates, 45. The thirty-ninth session begins Sept. 29, 1925, and ends June 14, 1926.

PENNSYLVANIA

Pennsylvania, population 8,720,017, has six medical colleges. Of these, Philadelphia, having a population of 1,823,779, contains five, as follows: University of Pennsylvania School of Medicine, Jefferson Medical College, Hahnemann Medical College and Hospital, Woman's Medical College of Pennsylvania and Temple University Department of Medicine. The other school, the School of Medicine of the University of Pittsburgh, is situated in Pittsburgh, a city of 588,343.

Students intending to practice medicine in Pennsylvania, in addition to a four-year high school education, must complete a year's work in an approved college of liberal arts, including college courses in physics, chemistry and biology, before beginning the study of medicine. They must also have completed an internship of at least one year in an approved hospital.

Philadelphia

University of Pennsylvania School of Medicine, Thirty-Sixth Street and Hamilton Walk.—Organized in 1765. Classes were graduated in 1768 and in all subsequent years except 1772-1779, inclusive. The original title was the Department of Medicine, College of Philadelphia. The present title, School of Medicine of the University of Pennsylvania, was adopted in 1909. It granted the first medical diploma issued in America. In 1916 it took over the Medico-Chirurgical College of Philadelphia to develop it as a graduate school. The faculty consists of 64 professors, associate and assistant professors, and 152 lecturers, associates, instructors, etc., a total of 216. Three years of college work are required for admission including courses in physics, biology or zoology, chemistry, including general inorganic, organic and analytical, English and French or German. The first class is limited to 110 students; third and fourth to 135 each. The course embraces four years of study of thirty-three weeks each. The total fees for each of the four years are, respectively, $333, $325, $325 and $329 for men and $15 less per year for women students. The Dean is Dr. William Pepper. Total registration for 1924-1925 was 471; graduates, 131. The one hundred and sixtieth session begins Sept. 25, 1925, and ends June 16, 1926.

Jefferson Medical College, Tenth and Walnut Streets.—Organized in 1825 with its present title as the Medical Department of Jefferson College, Cannonsburg, Pa. Classes have been graduated annually since 1826. In 1838 a separate university charter was granted without change of title, since which time it has continued under the direction of its own board of trustees. It has a faculty of 45 professors, associate and assistant professors, and 134 associates, lecturers, demonstrators and instructors, a total of 179. Entrance requirements are a completed standard four-year high school or college preparatory course, or the equivalent, and in addition two years of work leading to a degree in an approved college of arts and science amounting to at least 60 semester hours, including specified courses in physics, general and organic chemistry and biology, with laboratory work in each subject. The course of study covers four years of eight and a half months each. The fees are about $325 each year, with a matriculation fee of $10 paid on admission. The Dean is Dr. Ross V. Patterson. The total registration for 1924-1925 was 573; graduates, 142. The one hundred and first session begins Sept. 23, 1925, and ends June 4, 1926.

Woman's Medical College of Pennsylvania, Twenty-First and N. College Avenue.—Organized in 1850. Classes were graduated in 1852 and in all subsequent years except 1862. It has a faculty of 17 professors and 52 assistants, lecturers, etc., in all, 69. Entrance requirements are a completed course in a standard secondary school, and in addition two years of collegiate work, including courses in physics, chemistry, biology and French or German. The curriculum covers four years of eight months each. Fees for each of the four years are, respectively, $400, $400, $400 and $450. The Dean is Dr. Martha Tracy. The total registration for 1924-1925 was 94; graduates, 30. The seventy-sixth session begins Sept. 23, 1925, and ends June 9, 1926.

Hahnemann Medical College and Hospital of Philadelphia, 220-24 North Broad Street.—Organized in 1848 as the Homeopathic Medical College of Pennsylvania. In 1869 it united with the Hahnemann Medical College of Philadelphia, taking the latter title. Assumed present title in 1885. The first class graduated in 1849. Entrance requirements are a completed course in a standard secondary school and in addition two years devoted to a college course, including English and either French, German or Spanish, physics, chemistry and biology. It has a faculty of 52 professors and 62 lecturers, instructors, etc., in all, 114. The work covers four years of eight and a half months each. Total fees for each year are, respectively, $275, $272, $272 and $272. The Dean is Dr. William A. Pearson. The total registration for the college year 1924-1925 was 224; graduates, 48. The seventy-eighth session begins Sept. 29, 1925, and ends June 4, 1926.

The Temple University School of Medicine, Eighteenth and Buttonwood Streets.—Organized in 1901. The first class graduated in 1904. The faculty numbers 20 professors and 114 associates, assistants, etc., a total of 134. Two years of college work are required for admission. The fees for each of the four years, respectively, are $230, $225, $215 and $215. The Dean is Dr. Frank C. Hammond. The total registration for 1924-1925 was 220; graduates, 48. The twenty-fifth session begins Sept. 21, 1925, and ends June 18, 1926.

Pittsburgh

University of Pittsburgh School of Medicine, Bigelow Boulevard.—Organized in 1886, as the Western Pennsylvania Medical College and in 1908 became an integral part of the University of Pittsburgh, removing to the university campus in 1910. The first class graduated in 1887. The faculty is composed of 18 professors and 142 associates, assistants, etc., 160 in all. Entrance requirements are two years of college work, including English, chemistry (inorganic and organic), physics, biology and a reading knowledge of French or German, Italian or Spanish. The course of study is four years of eight and a half months each. The total fees for the four years, respectively, are $327.50, $312.50, $312.50 and $322.50. The Dean is Dr. Raleigh R. Huggins. The total registration for 1924-1925 was 227; graduates, 47. The fortieth session begins Sept. 21, 1925, and ends June 9, 1926.

SOUTH CAROLINA

South Carolina, population 1,683,724, has one medical college, situated in Charleston, a city of 67,957 people.

Students intending to practice medicine in South Carolina must complete, in addition to 14 units of high school work, two years in an approved college, including courses in English, physics, chemistry and biology.

Charleston

The Medical College of the State of South Carolina, 16 Lucas Street.—Organized in 1823 as the Medical College of South Carolina. The first class graduated in 1825. In 1832 a medical college bearing the present title was chartered and the two schools continued as separate institutions until they were merged in 1838. Classes were graduated in all years except 1862 to 1865, inclusive. In 1913, by legislative enactment, it became a state institution. It has a faculty of 36 professors and 25 lecturers, instructors, etc., a total of 61. The course covers four years of eight months each. Two years of collegiate work including courses in physics, chemistry, biology and a modern foreign language are required for admission, in addition to a standard high school preparation. The total fees are $165 annually. The Dean is Dr. Robert Wilson, Jr. Total enrolment for 1924-1925 was 156; graduates, 35. The ninety-seventh session begins Sept. 24, 1925, and ends June 3, 1926.

SOUTH DAKOTA

South Dakota, population 636,547, has one medical college, the University of South Dakota College of Medicine, located at Vermilion, a town of 2,590 people.

Students intending to practice medicine in South Dakota must show that they matriculated in and graduated from medical colleges which required at least two years of collegiate work for admission, including courses in physics, chemistry, biology and a modern language. They must also have completed a year's internship in an approved hospital.

Vermilion

University of South Dakota College of Medicine.—Organized in 1907. Offers only the first two years of the medical course. Two years' work in a college of liberal arts are required for admission. The fees are $100 each year. The faculty numbers 11. The Dean is Christian P. Lommen, B.S. The total registration for 1924-1925 was 40. The nineteenth session begins Sept. 16, 1925, and ends June 12, 1926.

TENNESSEE

Tennessee, population 2,337,885, has three medical colleges. Of these, Vanderbilt University School of Medicine and Meharry Medical College are situated in Nashville, a city with a population of 118,342. The College of Medicine of the University of Tennessee is located in Memphis, population 162,351.

Students intending to practice medicine in Tennessee must complete two years of collegiate work, including courses in physics, chemistry, biology and a modern language, in addition to a four-year high school course, before entering on the study of medicine.

Memphis

University of Tennessee College of Medicine, three buildings, 879 Madison Avenue.—Organized in 1876 at Nashville as Nashville Medical College. First class graduated 1877, and a class graduated each subsequent year. Became Medical Department of University of Tennessee in 1879. In 1909 it united with the Medical Department of the University of Nashville to form the joint Medical Department of the Universities of Nashville and Tennessee. This union was dissolved in 1911. The trustees of the University of Nashville by formal action of that board named the University of Tennessee College of Medicine as its legal successor. In 1911 it moved to Memphis, where it united with the College of Physicians and Surgeons. The Memphis Hospital Medical College was merged in 1913. Lincoln Memorial University Medical Department was merged in 1914. The faculty includes 54 professors and 98 assistants, instructors, etc., a total of 152. Entrance requirements are a high school education plus two years of collegiate work. *Students taking the two-year premedical course in Knoxville may* secure the B.S. and M.D. degrees. The total fees for the four years, respectively, are $107, $102, $102 and $127 for residents of the state, and $100 more each year for nonresidents. The Dean is Dr. James B. McElroy. Total registration for 1924-1925 was 219; graduates, 58. The next session begins Sept. 28, 1925, and ends June 7, 1926.

Nashville

Vanderbilt University School of Medicine.—This school was founded in 1874. The first class graduated in 1875. The faculty consists of 43 professors and 73 lecturers, a total of 116. Beginning in 1925 students must have successfully completed at least three years of college work with such grades as will entitle them to receive the B.S. degree after one year in the School of Medicine. The course covers four years of nearly nine months each. The total fees for the four years, respectively, are $215, $215, $215 and $240. The Dean is G. Canby Robinson. The total registration for 1924-1925 was 181; graduates, 43. The fifty-second session begins Sept. 23, 1925, and ends June 9, 1926.

Meharry Medical College. Colored. 1118 First Avenue, South.—This school was organized in 1876 as the Medical Department of Central Tennessee College, which became Walden University in 1900. First class graduated in 1877. Obtained new charter independent of Walden University in 1916. The faculty is made up of 20 professors and 20 instructors, demonstrators, lecturers, etc., 40 in all. The work embraces four years of thirty-one weeks each. The total fees for the four years, respectively, are $160, $160, $160 and $180. The President is Dr. John J. Mullowney. Total registration for 1924-1925 was 206; graduates, 34. The fiftieth session begins Oct. 1, 1925, and ends May 20, 1926.

TEXAS

Texas, population 4,663,228, has two medical colleges. The University of Texas School of Medicine is located at Galveston, a city of 44,255 inhabitants. The Baylor University College of Medicine is located in Dallas, population 158,976.

Students intending to practice medicine in Texas must complete at least a year of collegiate work, including courses in physics, chemistry, biology and a modern language, in addition to a standard four-year high school course, before entering on the study of medicine. Beginning in 1926, two years of preliminary college work will be required.

Dallas

Baylor University College of Medicine, 720 College Avenue.—Organized in 1900 as the University of Dallas Medical Department. In 1903 it took its present name and became the Medical Department of Baylor University. It acquired the charter of Dallas Medical College in 1904. The first class graduated in 1901. The faculty consists of 46 professors and 58 instructors and assistants, a total of 104. Entrance requirements are two years of college work in addition to a four-year high school education. The course is four years of eight months each. The fees for each of the four years, respectively, are $208, $198, $188 and $188. The Dean is Dr. Walter H. Moursund. Total registration for 1924-1925 was 213; graduates, 27. The twenty-sixth session begins Sept. 28, 1925, and ends May 31, 1926.

Galveston

University of Texas School of Medicine, Avenue B, between Ninth and Tenth Streets.—Organized in 1891. The first class graduated in 1892. It has a faculty of 15 professors and 31 lecturers and instructors, a total of 46. The curriculum embraces four years of eight months each. The entrance requirement is two years of collegiate work in addition to a four year high school education. The freshman class is limited to 60 students on a scholarship basis, Texans having preference. The total fees for the four years, respectively, are $198, $173, $175 and $173 for residents of the state, and $150 additional each year for nonresidents. The Dean is Dr. William Keiller. Total registration for 1924-1925 was 233; graduates, 57. The thirty-fifth session begins Oct. 1, 1925, and ends May 31, 1926.

UTAH

Utah, population 449,396, has one medical college, the School of Medicine of the University of Utah, situated at Salt Lake City, which has 118,110 people.

Students intending to practice medicine in Utah, in addition to a four-year high school education, must complete at least one year of collegiate work, including courses in physics, chemistry and biology, prior to beginning the study of medicine.

Salt Lake City

University of Utah School of Medicine.—Organized in 1906. Gives only first two years of medical course. Each course covers thirty-six weeks. Three years of collegiate work are required for admission. The medical faculty consists of 8 professors and 10 lecturers and assistants, a total of 18. The fees are $150 each year. The Dean is Dr. Ralph O Porter. Total registration for 1924-1925 was 46. The nineteenth session begins Sept. 27, 1925, and ends June 5, 1926.

VERMONT

Vermont, population 352,428, has one medical school, located at Burlington, a town of 22,779 people.

Students who desire to practice medicine in Vermont, in addition to a standard four-year high school education, must complete two years of collegiate work, including college courses in physics, chemistry and biology, before entering on the study of medicine.

Burlington

University of Vermont College of Medicine, Pearl Street, College Park.—Organized with complete course in 1822. Classes graduated in 1823 to 1836, inclusive, when the school was suspended. It was reorganized in 1853 and classes were graduated in 1854 and in all subsequent years. The faculty includes 22 professors, 6 associate and assistant professors and 19 instructors, assistants, etc, a total of 47. Two years of college work in addition to a four-year high school education are required for admission. The course of study covers four years of nine months each. For residents of Vermont the total fees for each of the first three years are $200 and $225 for the fourth year. Nonresidents are charged an additional $100 each year The Dean is Dr. H. C. Tinkham. The total registrations for 1924-1925 was 123; graduates, 43. The next session begins Sept. 16, 1925, and ends June 18, 1926.

VIRGINIA

Virginia, population 2,309,187, has two medical colleges, one, the Department of Medicine of the University of Virginia, situated in Charlottesville, population 10,688, and the Medical College of Virginia at Richmond, population 171,667.

Students desiring to practice in Virginia must be graduates of medical colleges which require that all students admitted shall have completed two years of collegiate work, including courses in physics, chemistry, biology and a modern language, preferably German, in addition to a four-year high school education.

Charlottesville

University of Virginia Department of Medicine.—Organized in 1827. Classes were graduated in 1828 and in all subsequent years except 1865 It has a faculty of 25 professors and 21 lecturers, instructors, assistants, etc, a total of 46. The requirements for admission are the completion of a four year high school course, or its equivalent, and two years of college work devoted to English, mathematics, chemistry, physics and biology. Total fees for the four years, respectively, are $255, $255, $205 and $195 The Acting Dean is Dr James C Flippin The total registration for 1924-1925 was 213, graduates, 53 The ninety-seventh session begins Sept. 17, 1925, and ends June 15, 1926.

Richmond

Medical College of Virginia, Twelfth and Clay Streets.—Organized in 1838 as the Medical Department of Hampden Sydney College Present title was taken in 1854. In 1913 the University College of Medicine was merged In 1914 the North Carolina Medical College was merged Classes were graduated in 1840 and in all subsequent years It has a faculty of 40 professors and 101 lecturers, instructors, etc, a total of 141. The requirement for admission is a four year high school education and in addition two years of collegiate work, including courses in physics, chemistry, biology and English. The course embraces four years of eight months each. Total fees for the four years, respectively, are $295, $295, $286 and $316. The Dean is Dr. Manfred Call The total registration for 1924 1925 was 306; graduates, 64 The eighty-seventh session begins Sept 16, 1925, and ends June 1, 1926.

WEST VIRGINIA

West Virginia, population 1,463,701, has one medical college, the School of Medicine of West Virginia University, which offers the first two years of the medical course. It is located at Morgantown, a city of 12,127 population.

Students who desire to practice medicine in West Virginia must complete, in addition to a high school education, two years of collegiate work, including courses in physics, chemistry and biology, before entering on the study of medicine.

Morgantown

West Virginia University School of Medicine.—Organized in 1902, and gives only the first two years of the medical course Two years of college work are required for admission and the Bachelor's degree will be granted to those who finish the two years in medicine Session extends through nine months The faculty numbers 16. Fees: For residents of the state, $95 each year, for nonresidents, $245. Cadets pay laboratory fees only. The Dean is Dr John N. Simpson The total registration for 1924-1925 was 111. The next session begins Sept. 22, 1925, and ends June 15, 1926.

WISCONSIN

Wisconsin, population 2,632,067, has two medical colleges, the Medical School of the University of Wisconsin, which teaches the first two years of the medical course, and is located at Madison, a city of 38,378 people, and the Marquette University School of Medicine, located at Milwaukee, a city of 457,147 people.

Students intending to practice medicine in Wisconsin, prior to entering a medical school, must complete, besides a four-year high school course, two years of collegiate work, including courses in physics, chemistry, biology and a modern language.

Madison

University of Wisconsin Medical School.—Organized in 1907. For matriculation at least two years in a college of arts and science or its equivalent training are required, including two years of Latin, a reading knowledge of French or German, and at least a year's work in physics, chemistry and biology. It has a faculty of 26 professors and 54 lecturers, instructors, etc, a total of 80. Thus far the school has offered only the first two years of the medical course In the fall of 1925 the work of the third year will be given, and in the fall of 1926 and thereafter the entire four-year course. Tuition fees: for residents of the state, $115 for first year and $95 for second year; for nonresidents, $210 for first year and $185 for second year. The Dean is Dr Charles R. Bardeen. The registration for 1924 1925 was 165. The eighteenth session begins Sept. 23, 1925, and ends June 21, 1926

Milwaukee

Marquette University School of Medicine, Fourth Street and Reservoir Avenue.—Organized in December, 1912, by the merger of the Milwaukee Medical College and the Wisconsin College of Physicians and Surgeons It has a faculty of 118. The entrance requirements are two years of college work, including courses in physics, chemistry, biology and a modern language The curriculum covers four years of eight and a half months each, plus an additional fifth year's internship in an approved hospital The fees for the four years, respectively, are $313, $303, $303 and $283. The Dean is Dr Louis F. Jermain; the Dean of students is Dr. Eben J. Carey The registration for 1924-1925 was 245; graduates, 42. The fourteenth session begins Sept. 28, 1925, and ends June 9, 1926.

PHILIPPINE ISLANDS

The Philippine Archipelago, with a population of 10,607,872, has two medical colleges, the University of the Philippines College of Medicine and Surgery and the University of St Thomas College of Medicine and Surgery. They are located in the city of Manila, which in 1914 had a population of 283,613.

Manila

University of the Philippines College of Medicine, Manila.—Organized in 1907 as the Philippine Medical School, under the support of the government of the Philippine Islands In 1910 the title was changed to University of the Philippines College of Medicine and Surgery. Present title in 1923. The faculty includes 37 professors and 45 lecturers, assistants, etc, a total of 82. A two-year collegiate course, including courses in English, physics, chemistry, biology and either French or German is required for admission The course extends over five years In the fifth year the students serve as interns in the Philippine General Hospital The fees for the four years, respectively, are $81, $74, $59 and $56 The Dean is Dr Fernando Calderon The total registration for 1924 1925 was 165; graduates 20. The twentieth session began June 15, 1925, and ends March 16, 1926

University of St Thomas College of Medicine and Surgery. Manila.—Organized in 1907. The faculty includes 16 professors and 8 assistants, instructors, etc, a total of 24 (No report received for 1924 1925) The course extends over five years The Dean is Jose L. de Castro.

CANADA

The Dominion of Canada has nine medical colleges, all of which require a six-year course, including courses in physics, chemistry and biology. This course is practically equal to that in the colleges of the United States which require two years of college work for admission, including the science courses named.

Alberta

University of Alberta, Faculty of Medicine, Edmonton.—Organized in 1913 Offers all six years of the medical course The faculty includes 31 professors and 50 instructors, assistants, etc, a total of 81 Fees for each year are $182 The Dean is Dr Allan C Rankin. The registration for 1924 1925 was 118 The thirteenth session begins Sept. 30, 1925, and ends May 15, 1926

Manitoba

University of Manitoba Faculty of Medicine, Winnipeg.—Organized in 1883 as Manitoba Medical College; first class graduated in 1886, and a class graduated each subsequent year. The college transferred all its property to the University of Manitoba in 1919 and assumed the present title. The faculty includes 55 professors and 70 instructors, assistants, etc., a total of 125 The total fees for the five years, respectively, are $180, $175, $185, $185 and $175 Matriculation requirements include two years of college work in the faculty of Arts and Science of a recognized university subsequent to the complete high school course required for entrance to the latter The course extends over five years of eight months each. The Dean is Dr. S Willis Prowse. Total registration for 1924-1925 was 223, graduates, 57. The next session begins Sept. 28, 1925, and ends May 29, 1926.

Nova Scotia

Dalhousie University, Faculty of Medicine, Halifax, N. S.—Organized in 1867. Incorporated as the Halifax Medical College in 1875 Reorganized as an examining faculty, separate from the Halifax Medical College, in 1855. In 1911, in accordance with an agreement between the Governors of Dalhousie University and the Corporation of the Halifax Medical College, the work of the latter institution was discontinued and a full teaching faculty was established by the University By an arrangement between Dalhousie University and the Provincial Medical Board of Nova Scotia, the final professional examinations are conducted conjointly by the university and the board, and candidates may qualify at the same time for their academic degrees and the provincial license First class graduated in 1872 It has a faculty of 29 professors and 30 lecturers and demonstrators, a total of 59. Requires for matriculation one year of Arts and a graded course of six years, including premedical courses in physics, chemistry and biology. The fees are $200 each year, except for the first, for which the fees are $132 The total registration for 1924 1925 was 164; graduates, 43 The Dean is Dr. John Stewart. The next session begins Sept 7, 1925, and ends May 11, 1926

Ontario

University of Toronto, Faculty of Medicine, Toronto—Organized in 1843 as the Medical Faculty of King's College. Abolished in 1853 Reestablished in 1887. In 1902 it absorbed Victoria University, Medical Department, and in 1903 absorbed Trinity Medical College The course of study covers six years of eight months each, the first two being devoted largely to physics, chemistry, biology and cultural courses in history, science and English. It has a faculty of 58 professors and 202 lecturers, associates, etc, a total of 260 The fees are $163 for the first five years and $191 for the sixth year The Dean is Dr Alexander Primrose The total registration for 1924 1925 was 774; graduates, 140 The next session begins Sept. 29, 1925, and ends May 30, 1926

Queen's University Faculty of Medicine, Kingston—Organized 1854, first class graduated in 1855, and a class graduated each subsequent year The faculty was originally a department of the university, but a separation took place in 1866, when the school was conducted under the charter of the Royal College of Physicians and Surgeons at Kingston In 1892 the school again became a part of Queen's University The faculty numbers 48 The fees for the six years are, respectively, $148, $151, $146, $160, $160, and $180 The last includes the fee of $30 for the M D, C M degrees The course covers six years of thirty teaching weeks each, the first including courses in physics, chemistry, biology, history or economics The total registration in 1924 1925 was 204 No graduates in 1925 The Dean is Dr. J C. Connell The next session begins Sept 30, 1925, and ends May 19, 1926

University of Western Ontario Medical School, London, Ontario—Organized in 1881 as the Western University, Faculty of Medicine, first class graduated in 1883, and a class graduated each subsequent year. Present title in 1923 The medical school has been under the control of the Board of Governors of the University of Western Ontario since 1913 The faculty numbers 72 Two years of premedical college work, including courses in physics, chemistry and biology, are required for admission to a four year medical course—all of which are referred to as a six year medical course The total fees for the last four years, respectively, are $155, $163, $163 and $183 The Dean is Dr Paul S. McKibben Total registration for 1924 1925 was 99, graduates, 21. The next session begins Sept 22, 1925, and ends May 28, 1926

Montreal

McGill University, Faculty of Medicine—Founded 1824 as Montreal Medical Institution; became the Medical Faculty of McGill University in 1829, first class graduated under the university auspices in 1833 No session between 1836 1839 owing to political troubles. In 1905 it absorbed the Faculty of Medicine of the University of Bishop College The course consists of two premedical years, four medical years of eight months each, and a fifth year of hospital intern work. The faculty consists of 25 professors and 133 lecturers, etc, a total of 158 The total fees for each of the five medical years are $232, for the sixth year, $262 The total registration for 1924 1925 was 480, graduates, 97 The Dean is Dr. C. F Martin The next session begins Sept. 21, 1925, and ends April 28, 1926

University of Montreal Medical Faculty, Montreal.—Organized in 1843, incorporated in 1845 as the Montreal School of Medicine and Surgery In 1891, by act of Parliament, the Medical Faculty of Laval University (organized in 1878) was absorbed Present name, by act of Parliament, in 1920 A class was graduated in 1843 and in each subsequent year The faculty numbers 85 The course extends over six years, including preliminary courses in physics, chemistry and biology. The total fees for each of the five years, respectively, are $207, $200, $242, $214 and $207 The Dean is Louis de Lotbiniere Harwood The total registration for 1924-1925 was 251; graduates, 74. The next session begins Sept 15, 1925, and ends June 15, 1926.

Quebec

Laval University Faculty of Medicine, Quebec—The Quebec School of Medicine, organized in 1848, became in 1852 the Medical Department of Laval University; first class graduated in 1855, and a class graduated each subsequent year. The faculty numbers 57. The fees are $135 each year. The course extends over six years, including preliminary courses in physics, chemistry and biology. The Secretary is Dr. Arthur Vallée, Quebec Total registration for 1924-1925 was 223, graduates, 30

THE ASSOCIATION OF AMERICAN MEDICAL COLLEGES

The requirements for admission to and graduation from colleges holding membership in this association are 15 units of high school work and two years (60 semester hours) of college work.

Curriculum: The entire course of four years shall consist of not less than 3,600 hours, and shall be grouped in divisions and subdivided into subjects, each division to be allotted approximately the time, on a percentage basis, as shown in the following schedule:

1. Anatomy, including embryology and histology	14 –18½%
2 Physiology	4½– 6 %
3 Biochemistry	3½– 4½%
4 Pathology, bacteriology and immunology	10 –13 %
5 Pharmacology	4 – 5 %
6 Hygiene and sanitation	3 – 4 %
7. General medicine (neurology and psychiatry, pediatrics, dermatology and syphilis)	20 –26½%
8. General surgery (orthopedic surgery, urology, ophthalmology, otolaryngology, roentgenology)	13 –17½%
9. Obstetrics and gynecology	4 – 5 %
	76 – 100%
Electives	24 – 0 %

MEMBERS OF ASSOCIATION

University of Alabama School of Medicine.
College of Medical Evangelists
Stanford University School of Medicine.
University of California Medical School.
McGill University Faculty of Medicine
University of Toronto Faculty of Medicine.
University of Colorado School of Medicine
Yale University School of Medicine.
Georgetown University Medical School
George Washington University School of Medicine.
Howard University School of Medicine.
Army Medical School
Navy Medical School
Emory University Medical Department
University of Georgia Medical Department.
Loyola University School of Medicine
Northwestern University Medical School.
Rush Medical College
University of Illinois College of Medicine.
Indiana University School of Medicine
State University of Iowa College of Medicine
University of Kansas School of Medicine.
University of Louisville School of Medicine
Tulane University of Louisiana School of Medicine.
Johns Hopkins University Medical Department
University of Maryland School of Medicine and College of Physicians and Surgeons
Boston University School of Medicine.
Medical School of Harvard University.
Tufts College Medical School
Detroit College of Medicine and Surgery.
University of Michigan Medical School
University of Minnesota Medical School
University of Mississippi School of Medicine.
St Louis University School of Medicine
University of Missouri School of Medicine.
Washington University Medical School
John A Creighton Medical College.
University of Nebraska College of Medicine.
Albany Medical College
Columbia University College of Physicians and Surgeons
Cornell University Medical College
Long Island College Hospital
Syracuse University College of Medicine
University and Bellevue Hospital Medical College.
University of Buffalo Department of Medicine
University of North Carolina School of Medicine
Wake Forest College School of Medicine
University of North Dakota School of Medicine.
Ohio State University College of Medicine
University of Cincinnati College of Medicine
Western Reserve University School of Medicine.
University of Oklahoma School of Medicine
University of Oregon School of Medicine
Hahnemann Medical College and Hospital
Jefferson Medical College.
University of Pennsylvania School of Medicine.
University of Pittsburgh School of Medicine.
Woman's Medical College of Pennsylvania
University of the Philippines College of Medicine and Surgery.
Medical College of the State of South Carolina
University of South Dakota College of Medicine
Meharry Medical College.
University of Tennessee College of Medicine.
Vanderbilt University Medical Department.
Baylor University College of Medicine.
University of Texas Medical Department.
University of Vermont College of Medicine.
Medical College of Virginia
University of Virginia Department of Medicine.
West Virginia University School of Medicine.
Marquette University School of Medicine
University of Wisconsin Medical School.

The secretary-treasurer of the Association is Dr. Fred C. Zapffe, 3431 Lexington Street, Chicago.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - : Chicago, Ill.

Cable Address : : : : "Medic, Chicago"

Subscription price - - - - : - Five dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, AUGUST 22, 1925

A QUARTER CENTURY'S PROGRESS IN MEDICAL EDUCATION

The quarter century ending with 1925 has seen a successful campaign for the improvement of medical education in this country. The extent of the improvement is such as has not been equaled by any other department of education. Prior to 1900, little was known regarding our medical schools. Only those closely identified with medical education knew of the reports published by the Illinois State Board of Health during the secretaryship of Dr. John H. Rauch.[1] The high ideals upheld during his official career and his annual reports on medical education had much to do with increasing the instruction in medical schools from a two to a three year course, and later from a three to a four year course. His work also resulted in the exposure of a score or more of diploma mills located in various parts of the country, as a result of which they were forced to close. Unfortunately, the reports that he published had a limited circulation. During the last decade of the nineteenth century,[2] through a change in administration, when sweeping changes were made in the personnel of the board, the work was terminated so far as hindrances to the operation of low-grade medical schools was concerned. Immediately thereafter, the country entered a period when medical schools multiplied rapidly, and for a decade all pressure toward the improvement of medical education was apparently withdrawn.

PUBLICITY BY THE JOURNAL

In 1900, The Journal began the collection of statistics in regard to medical colleges, students and graduates, resulting in the publication of the first educational number, Sept. 21, 1901. The data published were based on reports received directly from the medical schools and, therefore, were presented in the most favorable light. Nevertheless, the conditions revealed were so serious that, in 1904, the American Medical Association deemed it necessary to create a permanent committee, the Council on Medical Education, to devote its energies toward the improvement of medical education in this country. Information was collected regarding medical education abroad, and it was found that this country had more medical schools than all other countries combined. Only a few of the medical schools in this country, however, could compare favorably with those abroad so far as entrance requirements and equipment were concerned. Of the 160 medical schools, only a few were financed and controlled as actual departments of universities, most of them being proprietary affairs conducted for profit. The most deplorable conditions existing, however, were not ascertained until brought out in the inspection of all medical schools made by the Council during the college session of 1906-1907. At the lowest extreme were a few institutions which were actually selling diplomas; in a large number only didactic, lecture or recitation courses were given, sometimes by the one teacher who constituted the entire faculty. Most of the schools had no laboratories save an old-time dissecting room and occasionally an excuse for a chemical laboratory.[3] Less than half of the colleges had affiliations with either dispensaries or hospitals in which patients could be utilized for clinical instruction, and the schools were few, indeed, in which students had the opportunity to study patients in small clinics at the bedside or as clinical clerks. No one familiar with the awful conditions found by the inspectors during the investigation of 1906-1907 would ever advocate a return to that dark era.

The methods followed by the Council through the suggesting of standards, annual conferences, inspections and classifications of schools, and the publishing of statistics and annual reports, are now history. That the campaign was successful was due to the hearty manner in which the medical schools and state licensing boards, both individually and in their associations, university presidents and others interested, supported the Council and the American Medical Association in its campaign for improvement. In 1910, the Carnegie Foundation for the Advancement of Teaching entered the campaign, giving added momentum to the work, and called the attention of philanthropists to the financial needs of medical schools.

SUMMARY OF PROGRESS MADE

During the last quarter century, in brief, the medical schools in this country have been improved so as to give a medical training in accordance with the greatly enlarged knowledge regarding the cause, diagnosis, treatment and prevention of diseases. A large oversupply of medical schools (160), most of which were of inferior grade, gave way to a more normal supply (eighty) of greatly improved, well equipped and amply financed institutions. Of these, sixty-four (80 per cent.) are now departments of reputable universities while, in 1904, 77.5 per cent. were privately owned. Through the higher educational standards and the merging of colleges, the numbers of medical students and medical graduates were considerably reduced, but the quality has been tremendously improved. The reduction, moreover, proved to be temporary. The increases in numbers have been from 12,930 in 1919 to 18,200 in 1925, an average of about 1,000 students each year. It must be recalled also that most of these students (96.2 per cent.) are trained in improved, higher grade medical schools, as compared with only 1,761 (6.2 per cent.) in 1904. Of graduates also the numbers increased from 2,529 in 1922 (the war class) to 3,974 this year—the largest number since 1914. Of these also, 96.2 per cent. were from high grade medical schools, as compared with only 6.4 per cent. of all graduates in 1904.

---

[1] (1877-1891).

[2] 1893.

[3] One institution was found which turned out 105 graduates in 1905, without having completed any laboratory work, not even dissecting, nor had they had the opportunity to see a single patient in either a dispensary or a hospital.

NEWER PROBLEMS

But perfection has not yet been attained. Newer problems have arisen as a direct result of the advances made. Formerly, except in a few schools, there was no curriculum to worry about; now, the curriculum is overcrowded and revisions are greatly needed. Formerly, the average student could easily master all the subjects taught in the medical school; now, in the four years he cannot possibly master all the subjects taught in the curriculum but must limit himself to the subjects needed to round out his training as a general practitioner. He must devote additional time, within the narrower bounds of some specialty, if he wishes to develop a higher degree of knowledge and skill in that special field. The curriculum, therefore, should be devised primarily to furnish medical students with this basic training, leaving the courses in special subjects to the graduate medical school.

A limitation of enrolments was established by certain medical schools in an effort further to improve medical education. This limitation added to the difficulties of well qualified students in gaining admission to medical schools. An investigation showed that the difficulty was due, not to an inadequate capacity of the medical schools, but to the fact that students had to make application to several medical schools before securing registration. This led to the erroneous report that many well qualified students were unable to gain admission to medical schools. After the registration was completed last fall, however, reports stated that there were still more than 1,500 vacancies in Class A schools. It is reported, also, that certain changes could be made without much difficulty or expense, to provide for 5,000 additional medical students, should that become necessary.

One problem of today has to do with the distribution and not the supply of physicians. The proportion of physicians to population in cities is apparently more than sufficient to offset the evident shortage in rural communities. Another problem is whether two or more years of time cannot be saved during the physician's preliminary and professional education so that he can enter practice at a less advanced age. The main problem, however, relates to the readjustments whereby, under the modern essentials and methods of practice, the benefits of modern medical training and practice can be brought within the reach, financially, of the largest possible proportion of the public.

THE NATIONAL BOARD'S CERTIFICATE DESERVES UNIVERSAL RECOGNITION

The certificate of the National Board of Medical Examiners is now recognized by thirty-five licensing boards, including those of thirty-three states, Porto Rico and the Canal Zone. The number of candidates for its certificate has steadily increased from ten who took the first examination in Washington, D. C., in October, 1916, to 978 who were examined during 1924. Altogether, 2,212 candidates have been examined since the board's first examination, and of these 1,745 (78 per cent.) passed. In the five years ending Dec. 31, 1921, eleven examinations were held and 268 candidates were granted certificates. Then a new plan was adopted which divided the examination into three parts: Part I, covering the fundamental medical sciences, could be taken at the end of the second medical year, and Part II on the clinical subjects, at the end of the fourth year, these two examinations being given in all Class A medical schools. Part III, a clinical and practical examination, could be taken by the candidate at the end of the hospital intern year in any one of sixteen widely distributed medical centers in which the examination was given simultaneously. The new plan was more advantageous in that candidates could take the examination at the most convenient and opportune times and without the unnecessary time and expense of traveling to a single distant place as under the old plan. This new plan brought a tremendous increase in the number of candidates. Instead of only 268 who received certificates in the five years under the old plan—an average of 54 each year—under the new plan, in the first three years, 1,744 candidates, an average of 581 each year, successfully passed the board's examination.

The National Board was organized in 1915, but did not attempt to hold examinations until 1916, after it had received the approval of the American Medical Association. Shortly thereafter, the board's certificate was accepted for admission to the Medical Corps of the United States Army, Navy, and the Public Health Service when the essential physical examination was passed.

Within two years after its organization, the medical licensing boards of eight states [1] announced their willingness to license without further examination those who held the National Board's certificate. After five years, the trial period of the board's usefulness, the certificate was accepted in eleven other states.[2] During this second period the board's diplomas were endorsed by the Conjoint Board of England, the Triple Qualification Board of Scotland, the American College of Surgeons and the Mayo Foundation. Since then the licensing boards of sixteen other states also provided for the recognition of the board's certificate.[3] At present, therefore, besides the professional associations and boards named, the licensing boards of thirty-five states are recognizing the certificates of the National Board.

---

[1] These states were Colorado, Idaho, Iowa, Kentucky, Maryland, New Hampshire, North Dakota and Pennsylvania.

With its steadily increasing number of candidates; with its well established permanence, and with the generally accepted high character of its examination, the National Board appears to be worthy of recognition by all the licensing boards in the United States. It is hoped, therefore, that the other nineteen states and territories[4] which thus far have not done so will see that legislation is enacted which will enable them to recognize the board's certificate as an acceptable qualification for a license in those states. As a medium for the exchange of medical qualifications between this and foreign countries, the board's certificate will obtain even wider recognition when it is universally accepted by all states in this country. The National Board and its examination now constitute one of the most encouraging influences in the field of medical licensure.

FATE OF THE RED BLOOD CELLS IN PERNICIOUS ANEMIA

The formation and death of the red blood corpuscles furnish part of the story of the changes that make up the "procession of life." Unlike some of the other cells of the body, the erythrocytes are not formed once for all at birth, but those present in the blood stream represent the momentary residuum of antagonistic processes.[5] Today it is certain that a disintegration of red corpuscles takes place constantly, in sickness and in health. New demands are usually coped with successfully, so far as concerns the immediate task of accomplishing additional destruction, when that is necessary, or disposing of the products of a breaking down unprovoked by the body. But for such emergency purposes, other mechanisms besides the normal must frequently be called on. It is the interplay and substitute activities of these reserve mechanisms, Rous has remarked, that make conclusions so difficult on the normal as well as the pathologic course of events.

Pernicious anemia is one of the conditions characterized by a failure of the constructive agencies to keep pace with the destructive influences that bear on the red blood corpuscles. Consequently there tends to be a large and usually ominous deficit of the latter. It is conceivable that the augmented blood destruction in certain diseases may be due to the presence of abnormal substances, such as hemolytic poisons that promptly upset the integrity of the red cells. Equally plausible is the doctrine that much of the blood destruction of pathologic states is consummated by acceleration of processes that are themselves normal. Students of the subject are thus soon brought face to face with the imperative necessity of learning where and how the erythrocytes ordinarily are disposed of. Phagocytosis by either fixed tissue cells or wandering cells has long been recognized in this connection. A recent writer[6] has remarked that when one considers the relative bulk of the spleen and liver in comparison to that of the normal active bone marrow, it is not surprising that the attention of investigators has been directed chiefly to these larger organs and that the bone marrow has received little consideration as a possible site of blood destruction. There are, however, pathologic conditions in which the fatty marrow of the long bones becomes replaced by a cellular tissue and the bone marrow becomes an organ of material size. This, he adds, happens in pernicious anemia.

The careful observations of Peabody and Broun at the Boston City Hospital justify the belief that phagocytosis not only occurs and is a constant feature of pernicious anemia but is also more prominent as a pathologic feature than it is in other diseases. Whether such "cellular hemolysis" is the only factor in the production of the anemia remains to be seen. According to the Boston clinicians, it is quite possible that the hemolytic jaundice of pernicious anemia is the result of phagocytic action but that other agencies take part in the causation of the anemia. In any event, the hemoglobin or its decomposition products immediately after their liberation probably pass quickly from the phagocyte into the blood stream. This would account for the finding of blood pigments as well as the derivative bile pigment in the plasma in acute stages of pernicious anemia.

The phagocytic cells—the so-called hematophages—that can engulf red blood corpuscles are, under normal conditions, of endothelial origin. Their activity in the ingestion of erythrocytes is, according to Rous, merely one expression of a widely exercised function; for they will take up with equal alacrity inert particles of many sorts, bacteria, and some of the so-called vital stains. The most striking evidence for their importance in blood destruction is of recent date. It has been further suggested by him that corpuscles which have been damaged by a variety of agents tend to lag here and there in organs that contain actual and potential hematophages. The rapidity with which they collect in the spleen is sometimes startling, as is the speed of their subsequent ingestion by cells of the organ. It may well be, Rous adds, that they are taken up merely as inert bodies that have been rendered in some way foreign to the organism. On this view, the normal aging of corpuscles would involve changes causing certain of them to come to a stop here and there in the body, with phagocytosis as a secondary consequence. In pernicious anemia, the bone marrow becomes the theater of greatest hematophagic interest. The phagocytic cells there arise either from the vascular endothelium or from the reticulum. According to Peabody and Broun, in all probability the majority of the phagocytes, and certainly those which are free, wandering cells, are to be classed as "clasmatocytes" in the nomenclature of Sabin. The differentiation of this group of cells with outspoken phagocytic powers, cells functionally unlike the lymphocytes on the one hand and ordinary leukocytes on the other, cells that may arise from connective tissue as well as specialized endothelium here and there, has been designated as an outstanding feature of the newer studies in hematology.[7]

---

[2] These states were Alabama, Arizona, Delaware, Georgia, Minnesota, Nebraska, New Jersey, North Carolina, Rhode Island, Vermont and Virginia.

[3] These states were Canal Zone, Illinois, Maine, Massachusetts, Michigan, Mississippi, Nevada, New York, Oklahoma, Porto Rico, South Carolina, South Dakota, Tennessee, Texas, Washington and Wyoming.

[4] These states are Alaska, Arkansas, California, Connecticut, District of Columbia, Florida, Hawaii, Indiana, Kansas, Louisiana, Missouri, Montana, New Mexico, Ohio, Oregon, Philippine Islands, Utah, West Virginia and Wisconsin.

[5] An excellent review of the fate of the erythrocytes is given by Rous, Peyton: Destruction of the Red Blood Corpuscles in Health and Disease, Physiol. Rev. **3**: 75 (Jan.) 1923.

[6] Peabody, F. W., and Broun, G. O.: Phagocytosis of Erythrocytes in the Bone Marrow, with Special Reference to *Pernicious Anemia*, Am. J. Path. **1**: 169 (March) 1925.

ALCOHOL AND THE CIRCULATION

To say, in the words of a recent writer on hygiene, that "alcohol has capitulated to an ideal of social responsibility" may be more satisfying to the sociologists than it is to the physician. To call alcohol unreservedly a "protoplasmic poison" serves as a reminder that pure water and hydrochloric acid, both of which enter the human economy with occasional advantage, may also be assigned to the same category. The claim that alcohol is a stimulant is rapidly giving way in the face of its demonstrated depressant potencies. And if it is desired to add to the confusion of opinion, one may cite the much quoted dictum of an eminent clinician who held that whereas in health alcohol is mostly a detriment, in disease it may sometimes prove to be a blessing.

Little by little, however, the scientific truths about alcohol are coming into recognition through a broad minded spirit of objective research. Some of these have already been reviewed in The Journal.[8] The action of alcohol on the circulation is a theme about which there has been considerable confusion. It cannot be denied that many conscientious physicians who surely do not deserve the opprobrious epithet of medical bootleggers still are loath to abandon alcohol as a "circulatory stimulant" despite scientific uncertainty as to its pharmacology. Recent studies by McDowall[9] at King's College, London, may afford a partial explanation. He has asserted anew that, through the influence of moderate doses of alcohol, the skin capillaries become dilated, so that there may be a diminished return of blood to the heart. This happens without any reduction in arterial pressure, but is attended with a fall in venous pressure. The importance of this, McDowall avers, lies in the relief which a fall in venous pressure will give to an overtaxed heart. He notes that the physician gives alcohol in those cases in which the heart is subjected to strain, as in pneumonia, or when the heart is unable to do a reasonable amount of work, as in septicemia.

McDowall reminds us further why, on purely physiologic grounds, patients addicted to the use of alcohol are notoriously bad subjects in infectious conditions, especially pneumonia. The hearts of such persons will be frequently subjected to periods of diminished venous filling in which they are called on to do very little work per beat; and as the heart, like any other organ, adapts itself to the amount of work it has to do, it will become gradually less efficient and less capable of dealing with an additional load, such as occurs in such an emergency as pneumonia. The special liability, McDowall further reminds us, of habitual users of alcohol who take little physical exercise to be subjects of cardiac failure is well known, and no doubt it is for a similar reason that the prognosis in pneumonia becomes increasingly worse as the patient gets older and his heart becomes less efficient.

Current Comment

CORRELATION IN TEACHING OF LABORATORY AND CLINICAL SUBJECTS

In educational conferences during the last few years there has been much discussion with regard to the correlation of laboratory and clinical teaching. In our medical schools, the student's attention is called more frequently than formerly to the relationship of physiologic functions to symptoms, or he is shown how a normal anatomic structure differs after pathologic changes have occurred. Many medical schools have established clinical-pathologic conferences in which these relations are emphasized. The student should have close contact with patients, so that he may not only see the pathologic changes due to any particular disease but also observe in the living patient the symptoms caused by that disease. This trend in medical instruction shows that the laboratory and clinical departments of the medical school can no longer be in separate cities or otherwise widely separated. The desirability of having the premedical sciences also brought into the combination leads to the conclusion that the ideal medical school of the future should be located on the campus of the university. Such, indeed, has been the policy adopted in the development of medical schools during the last few years. With the opening of the college session this fall, two medical schools will begin active teaching in buildings planned especially for such correlation. At the new medical school of the University of Rochester, N. Y., and at the Vanderbilt University School of Medicine at Nashville, Tenn., medical teaching will be conducted in buildings that house both the medical laboratories and the hospital wards. Here the physical plant makes possible the most intimate contact between the laboratory and clinical departments. A class in the department of anatomy, of chemistry, of pathology, or even of pharmacology, may go directly from the laboratory to a patient in the same building and see the application of these sciences demonstrated on the living patient. More important, laboratory teachers, some of whom may not have had a medical training, may become familiar with the routine methods followed in the diagnosis and treatment of patients in the hospital. The clinicians, also, will learn more about the teaching methods and the research work carried on in the laboratory departments. Such closer relationships cannot fail to have beneficial results also for the patient. In the plans of the buildings in the schools referred to, it is interesting to note that the library is centrally located and establishes a place in which all the workers in the building—clinicians, laboratory men, interns, students and nurses—will occasionally meet. The entire plant is constructed so as to emphasize its chief object—to establish the greatest possible accuracy and efficiency in the diagnosis and treatment of disease. The further developments of medical teaching in these two schools will be watched with much interest.

---

[7] Sabin, F. R.: On the Origin of the Cells of the Blood, Physiol. Rev. **2**:38 (Jan.) 1922.

[8] Alcohol and Disease, Current Comment, J. A. M. A. **80**:1007 (April 7) 1923; Alcohol and the Germ Plasm, ibid. **82**:1444 (May 3) 1924; The Treatment of Acute Alcoholic Intoxication, ibid. **83**:199 (July 19) 1924; Some Truths About Alcohol, ibid. **84**:1668 (May 30) 1925.

[9] McDowall, R. J. S.: The Action of Alcohol on the Circulation, J. Pharmacol. & Exper. Therap. **25**:289 (May) 1925.

TUITION FEES AND SCHOLARSHIPS IN MEDICAL SCHOOLS

As shown in the statistics published this week,[1] the average tuition fee for each student is now $236, or just double what it was in 1910. In 1921 the average fee paid by each student was $185, in contrast with which the actual cost of his medical training was $655—more than three times what he paid in fees. With the greatly increased equipment in our medical schools, the larger number of salaried expert teachers, and other expensive developments, the average cost per student is now many times greater than it was in 1910. In that year several medical schools reported that all costs were paid from students' fees, and some were said to have had a surplus remaining. Because of the greatly improved instruction, students who can afford to do so should be expected to pay at least a fair proportion of the cost, and a reasonable increase in tuition fees was justifiable. It has been generally recognized that the full cost of maintaining the modern medical school cannot be met from students' fees, so that additional funds are now provided from state aid or private endowment. Recognizing the desirability of financing some students who cannot afford to pay tuition fees, about fifty medical schools[2] have provided, in the aggregate, about 550 scholarships, and thirty or more have set aside generous loan funds. Nevertheless, with the increasing charges for tuition, a larger provision of such aids is needed. They are especially important at this time, since the severity of the modern medical curriculum makes it more difficult for a student to earn money during his medical course. Reports indicate that many students even now earn a major part of their expenses at the same time they carry their medical studies. It is a question, however, whether the money so earned is not at the expense of much valuable experience which the student otherwise might have obtained. It is during the student's medical course, while he is under able instructors, that he has the best opportunity of his lifetime to study and observe patients in both dispensary and hospital. In order to make the best use of this opportunity, it would be better to borrow money with which to meet his expenses, or to have the advantage of a free scholarship. For those who have money to give, therefore, it would be hard to find a more worthy object than in the endowment of more of these scholarships. In the granting of the scholarships, proper safeguards should be established so that the chief object for which they are established, the helping of those who are really worthy of financial aid, may not be defeated.

FUNCTIONAL VERSUS MECHANICAL SUPPRESSION OF BILE

In most cases, the mention of jaundice brings to mind the picture of some sort of obstruction to the biliary passages. The interference with the outflow of the bile may be assumed to be located in either the larger ducts or the minutest canaliculi, but in any event it represents a mechanical interference with the discharge of the accumulating secretion. There are admittedly instances of jaundice of nonobstructive origin that have been described as congenital hemolytic icterus. The conception of such instances of pigment formation without participation of the liver has become easier in recent months, since the possibility of an extrahepatic origin of bilirubin has been shown to occur. Drury and Rous[3] have lately demonstrated a type of functional rather than mechanical suppression of biliary pigment excretion that arises in certain types of severe hepatic intoxication, notably after poisoning with chloroform. The functional inability of the liver cells to remove and excrete bilirubin from the blood in such circumstances is indicated by the production of a colorless, watery bile. This is not due to a lack of pigment formation within the body; indeed, an unusual amount may be produced because of augmented blood destruction; nor are there histologic indications of sufficient minute bile thrombi or other mechanically interfering conditions. The evidence points to a functional impairment resulting in a failure to eliminate some of the usual components rather than in obstruction to outflow. Perhaps this is analogous to the "white bile" that may become of grave concern to the surgeon if it is truly indicative of fundamental liver injury. It should not be confused, however, with the colorless fluid that is secreted by the duct system and commonly acts as a diluent to the concentrated bile discharged from the gallbladder.

---

[1] Table 10, page 592, this issue.

[2] See list of colleges, page 594, this issue.

[3] Drury, D. R., and Rous, Peyton: Suppression of Bile as a Result of Impairment of Liver Function, J. Exper. Med. **41**: 611 (May) 1925.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Personal.—Dr. Jefferson D. Duke, Heflin, has been appointed health officer of Cleburne County.——Dr. Thomas H. D. Griffitts, Montgomery, has been appointed assistant chief surgeon in charge of sanitation at the Alabama Power Company and Dixie Construction Company, with headquarters at Alexander City. Dr. Griffitts will have general supervision of the sanitary work in the Cherokee Basin.——Dr. Lee R. Murphree has been elected health officer of Limestone County and will take up his new duties, September 1, to succeed Dr. Herbert K. Gallagher.——Dr. William C. Hatchett has assumed charge of the Madison County Health Department.

ARKANSAS

Health Train a Success.—In the first two weeks of its tour, the Missouri Pacific Health Special visited fifty towns and cities in the state, and the health exhibits on the train were inspected by 22,204 persons. The train is operated by the Missouri Pacific Railroad in cooperation with the state board of health, the Arkansas Bankers Association and other agencies, in an effort primarily to lower the incidence of malaria and to instruct the public in health matters generally.

CALIFORNIA

Chinese "Doctors" Arrested.—Chew Hing and Ho Sing, Chinese herb doctors of Stockton, were recently arrested by a representative of the state board of medical examiners on charges of practicing medicine without a license and placed in the San Joaquin county jail, it is reported.

Personals.—Dr. William E. Musgrave, San Francisco, has been reappointed editor of *California and Western Medicine*. ——Dr. Frank Ruff, formerly of the U. S. Public Health Service at Fort Lyon, Colo., has taken charge of the roentgenray department at the Burnett Sanitarium, Fresno.

Industrial Accidents.—There were 206,131 accidents reported to the California Industrial Accident Commission in 1924, 645 of which were fatal, 1,319 caused permanent disability, and 87,982 temporary disability. According to *California and Western Medicine*, although 116,185 of these were "no disability" accidents, they required skilled medical attendance.

Plague Eradicative Measures.—The U. S. Public Health Service reports that among 57,072 rats trapped at Oakland, Calif., including other East Bay communities, from Jan. 1 to July 4, 1925, there were twenty-one found to be plague infected, and that among 5,130 squirrels examined from May 1 to July 4 there were none found plague infected, and that the last plague infected rat was discovered, March 4, 1925, and the date of the last human case of plague, Sept. 10, 1919. In the two weeks ending July 4 there were 1,751 rats trapped at Los Angeles, one of which was plague infected, and 1,623 squirrels examined, none of which were infected. The last plague infected rat was found, June 25.

CONNECTICUT

Attorney General's Opinion on Revocation of Licenses.—Just before the Connecticut eclectic examining board, as such, went out of existence, it filed a petition with the state department of health regarding the reinstatement of fifty-five eclectic physicians whose licenses had been revoked by the public health council on the request of a former eclectic board, following the special grand jury's investigation. It appears that the "banned physicians" recently secured control of the eclectic board and elected to membership on the board some of their own number. This is the board which filed a petition with the state department of health regarding reinstatement. The petition was signed, it is reported, by Drs. John O. Perry, Modestino Coppola, Raymond C. Prisque and Anthony R. Campo. The attorney general directed the state department of health to disregard the petition, as he was unable to find any legal authority for the state health council to rescind its former action of revoking these licenses. In his opinion, the attorney general brought out, in the case of this petition, that only four of the five members of the eclectic board signed the petition, and three of the four physicians signing had had their licenses revoked and their cases are pending in the superior court. The attorney general cited the decision of the supreme court, which held that the St. Louis College of Physicians and Surgeons was an "allopathic school of medicine" and that the eclectic examining board had no legal right to examine Coppola and Campo, who are graduates of the St. Louis College of Physicians and Surgeons. It follows, he said, that neither of them, therefore, is legally licensed to practice in this state and, therefore, lack the qualifications to serve as members of the eclectic examining board. Salvatore A. Scimeca of New Haven, who was admitted by reciprocity to practice in Connecticut by the eclectic examining board only one day before the board went out of office, was ruled out. The attorney general advised the council to refuse a license to Scimeca on the ground that the examining board had no jurisdiction. As noted in The Journal last week, the supreme court decided that the constitutional rights of those whose medical licenses were revoked had not been violated and that the procedure followed by the state department of health in revoking these licenses was in accordance with the law.

HAWAII

Superintendent of Territorial Hospital.—Dr. Alonzo B. Eckerdt was commissioned superintendent of the Oahu Insane Asylum, Honolulu, July 1, and the name of the hospital changed to that of the Territorial Hospital.

Personal.—Dr. Harold K. Marshall has been appointed physician at the leper settlement on the Isle of Molokai to succeed Dr. William J. A. Goodhue, who recently retired after serving at the settlement since 1902 (The Journal, July 11, p. 120). Dr. Marshall was formerly at the National Leprosarium at Carville, La. John D. McVeigh, superintendent of the leper colony, also recently retired after many years of service and was succeeded by Ralph L. Cooke.

IDAHO

Dr. Almond Resigns.—Dr. Frank W. Almond, Boise, state medical advisor, tendered his resignation, July 31, it is reported, effective September 1. Dr. Almond, who has held this position since 1920, will return to private practice in Boise.

Luncheon to Dr. Krause.—Under the auspices of the Idaho State Medical Association and the state antituberculosis association, a luncheon was given for Dr. Allen K. Krause, assistant professor of medicine and director of the Kenneth Dows Tuberculosis Research Laboratories, Johns Hopkins Hospital, Baltimore, at the Owyhee Hotel, Boise, July 31. Among other organizations, Dr. Krause addressed the Boise Summer Normal School on tuberculosis.

ILLINOIS

Report of Legislative Committee.—A survey of the work of the last Illinois legislature has been made by the legislative committee of the Illinois Medical Society. The committee was on the defensive throughout the entire session of the legislature, as the council did not offer any bills to be introduced. The hardest battle, the committee says, was with the chiropractors, who were exceptionally well organized and had the support of the speaker of the house and one of the floor leaders. However, the chiropractors were hopelessly defeated. The League for Medical Freedom, through alleged and incorrect charges against the Chicago Health Department, succeeded in having a bill passed by both houses which was designed to prevent health authorities from entering the home of a person having contagious disease without first getting a court order. A member of the legislative committee, the commissioner of public health and several others appeared before the governor to explain the situation, and this bill was promptly vetoed. No other matters affecting the medical profession passed either the house or the senate. The committee reports many bills introduced which were of medical interest; some of them were: H. B. 377, creating a chiropractic board; defeated. H. B. 581, an act to regulate naprapathy; defeated. H. B. 640, an act to standardize clinical thermometers; defeated. H. B. 231, providing for the asexualization of inmates of state institutions; defeated. S. B. 44, for a board of naturopaths; defeated. S. B. 116, providing for county health superintendents; defeated. S. B. 284, creating an osteopathic board; defeated. S. B. 285, permitting osteopaths to do obstetrics; defeated. S. B. 286, permitting osteopaths to do surgery; defeated. S. B. 287, to exempt osteopaths from the optometry act; defeated. S. B. 288, another osteopathic measure; defeated. S. B. 336, a naprapathic bill; defeated. S. B. 486, creating a board of examiners for masseurs; defeated.

Chicago

Endowment of Professorship.—A chair in the University of Chicago school of medicine was endowed, August 14, with the gift of $100,000 by Mrs. Anna Raymond. The chair, the selection of which will be left to the discretion of the trustees, will be known as the James Nelson and Anna Louise Raymond professorship.

"Clark Medical Clinic" Closed.—The Illinois State Department of Registration and Education closed the "Clark Medical Clinic," 189 North Clark Street, Chicago, August 13, and obtained a warrant, it is reported, for the arrest of "Dr. L. Devereux," who is charged with practicing medicine without a license. It is said that Devereux was posing as a French specialist and was obtaining from $20 to $100 for treatments.

Workshop for the Blind.—The executive director of the Chicago Lighthouse requests physicians to refer to that institution blind people who need its help. The lighthouse conducts workshops at 3323 West Twenty-Second Street under regular factory conditions where the blind are trained in industrial occupations. They receive this training without expense. The work includes typing, piano tuning, dictaphone operating, mechanical assembling, folding, packing, sorting, stacking, and wrapping of articles, weaving on hand looms, and other work. The work is identical with that which will be required of them in factories in which they will be helped to find positions. The best time to refer persons to the lighthouse is when their blindness is impending or soon after they have become blind. Later they lose courage, and it is difficult to regain their self-confidence.

INDIANA

Personal.—Dr. George F. Keiper, Jr., Lafayette, won the Sternberg Gold Medal at the University of Michigan Medical School, Ann Arbor, for the last college year for research work on "Botulism."

Indiana World War Memorial.—The first building of the $10,000,000 Indiana World War Memorial has been dedicated and assigned to the use of the American Red Cross and the American Legion. When completed, the memorial will comprise three separate structures, the memorial proper being 220 feet high in the center of a mall five block long, which has been acquired by the state in the center of Indianapolis. Work started on the project a year ago; about three years will be required to complete the memorial.

Inspection of Tourist Camps.—The state board of health has inspected more than 175 tourist camps in Indiana since the tourist season opened this year; more than 150 of these have been approved as meeting the board's regulations, and about twenty-five have been closed because of insanitary conditions. A certificate is issued to a camp that meets approval, showing that it has reasonably complied with regulations governing water, sewage and waste, general cleanliness, protection against flies, and other fundamental sanitary requirements.

IOWA

Personal.—Dr. Robert Fred Throckmorton, Des Moines, has been detailed as commanding officer of Evacuation Hospital No. 55 (U. S. Army Reserve), organized by the staff of Mercy Hospital.——Dr. Bert W. Caldwell, superintendent, University of Iowa Hospital, Iowa City, has resigned, effective September 1.

Staff Meeting.—Dr. Charles A. Elliott, professor of medicine, Northwestern School of Medicine, Chicago, recently addressed a joint staff meeting of the St. Vincent's and Methodist hospitals, Sioux City, on "Disease of the Thyroid and Jaundice." These hospitals have a plan of admitting rural physicians to privileges of working with their staffs. Seventy-five physicians were in attendance at the meeting.

KENTUCKY

Prize at Medical Training Camp.—The $100 prize donated by the Mask and Wig Club of the University of Pennsylvania, Philadelphia, to the medical student who exhibited the most soldierly qualities at the recent R. O. T. C. training camp, Carlisle, Pa., was awarded to Robert H. Barr of Owensboro. Men were present at the camp from the medical departments of twenty Eastern universities.

Illegal Practitioner Sentenced.—N. J. Goergen, Newport, pleaded guilty, August 8, it is reported, to a charge of practicing medicine without a license, and was fined $350 and costs and sentenced to sixty days in jail. Goergen was arrested on a warrant sworn to by the assistant secretary of the state board of health, P. E. Blackerby, charging that he "unlawfully treated sick and afflicted persons by the system of x-ray and electrotherapeutics for compensation without a state license."

LOUISIANA

State Board Buys Building.—The Louisiana State Board of Health purchased, August 17, a three story building adjoining the building now owned by the board in New Orleans. The second floor of the new building will be used for an auditorium for educational purposes, and the third floor for bacteriologic laboratories and the state food and drug departments.

Inspection of Shellfish Areas.—Surg. Clifford E. Waller, U. S. Public Health Service, who is in charge of health work in connection with oyster and shellfish industries along the Atlantic and Gulf coasts, is making an inspection trip on the *Louisiana*, a boat of the conservation department, together with conservation officials, J. H. O'Neill, sanitary engineer, Louisiana State Board of Health, and E. H. Gage, associate sanitary engineer, U. S. Public Health Service. They will inspect the oyster beds of Louisiana. Inspections are also being made by the state board of health of all shellfish industries in Louisiana.

Resolution on Free Clinics.—At a recent meeting of the Louisiana State Board of Health, requests for the reestablishment of free clinics were considered. The board took the position that the venereal disease clinics were emergency measures during the war and that the functions of the board are preventive and not curative. A resolution was adopted in which the board looked with disfavor on the reestablishment of clinics or dispensaries of any kind whatever, and stating that the best the board could do is to continue to furnish free arsphenamin for the indigent sick with the definite understanding that, when furnished free, the physician would not charge for administering it.

MAINE

Personal.—Dr. Franklin A. Ferguson, was elected secretary of the New England Examining Board at the meeting in Providence, R. I., to succeed Dr. Samuel H. Calderwood.

State Board Appointment. — The governor recently appointed Dr. Albert H. Sturtevant, Augusta, to the board of registration of medicine to succeed Dr. Luther G. Bunker. The personnel of the board also includes: Drs. William G. Chamberlain, Fort Fairfield; Allan Woodcock, Bangor; Franklin A. Ferguson, Portland; George R. Hagerthy, Bar Harbor, and Adam P. Leighton, Jr., secretary, Portland.

MARYLAND

Association Acquires Home.—The Maryland Tuberculosis Association has acquired a three-story and basement brick residence as headquarters.

Tricounty Health Meeting.—Officers of the state department of health and health officers and nurses of Worcester, Wicomico and Somerset counties met, July 29, at Salisbury to discuss health in those counties. This meeting, the first of its kind in Maryland, will be followed by similar meetings throughout the state. The object of joint meetings is to confer with health officers in the locality where they are working at various times of the year. It happens that Worcester and Somerset counties have high typhoid rates, Worcester having had twenty-three cases and Somerset twenty cases this year. The conference discussed means to reduce the incidence of typhoid in those counties. Wicomico

County, through its health officers and nurses, has had only nine cases this year.

Personal.—Dr. William H. Wilmer, director of the new Wilmer Institute, visited the Johns Hopkins Hospital, Baltimore, August 5, to inspect changes in construction which are being made in that portion of the institution devoted to the institute which will open, October 1. Dr. Wilmer went to Europe, June 2, visiting Paris, Vienna, Berlin, Freiburg, Leipzig, London, Glasgow and Edinburgh, and studying methods in laboratory practice in ophthalmology and new procedures in bacteriology and biochemistry; Dr. Wilmer purchased such equipment for the Baltimore laboratory as could be obtained only abroad.——Dr. Arthur P. Herring, commissioner of mental hygiene, spent the past week on the Eastern Shore of Maryland, inspecting the county homes as to sanitary conditions.

MASSACHUSETTS

License Restored.—The registration of Dr. Horace G. MacKerrow, Worcester, which had been revoked, was restored at a meeting of the Board of Registration in Medicine, held July 30.

Rare Medical Publications.—The Boston Medical Library has just procured a copy of the "Dix livres de chirurgie," Paris, 1564. The copy is perfect except for one page of the index and is so rare that Paré's bibliographer did not know of a complete copy in France except his own. The library has copies also of Paré's "Cinq livres de chirurgie," Paris, 1572, and the "Traicté de la peste, de la petite verolle et rougeolle," Paris, 1568; also, recently acquired, is a copy of Gautier d'Agoty's "Cours complet d'anatomie," which was printed in natural colors at Nancy in 1773. Recently there came on the market in Italy a copy of the "Epitome" of Vesalius, which consists of fourteen unnumbered leaves, the last two of which are usually missing, but in this copy they are perfect. The Boston library has this copy. Among the rare texts of more recent date are Langerhans' dissertation on the pancreas, Withering on the foxglove, and certain early American pamphlets.

MICHIGAN

Lectures on Chest Diseases.—Dr. Wilhelm Neumann of Vienna will come to Detroit, September 5, for a period of ten days to lecture on diseases of the chest, giving particular attention to tuberculosis.

Unlicensed Physician Arrested.—Dr. Eddie D. Crosby, Detroit, was arrested August 6, it is reported, on the charge of practicing medicine without a license. He has, according to an investigator of the department of health, been practicing in Detroit without a license since May 25. Crosby is said to have claimed to have a license to practice in Tennessee. There is no record at these headquarters of his license to practice in any state.

Chlorin Tanks at Bathing Beach.—The recent experiment to purify the water at Belle Isle Bathing Beach by the installation of chlorin apparatus seems to have been successful (The Journal, August 8, p. 444). In June and early July, bacteriologic examination of this water disclosed about a thousand colon colonies per hundred cubic centimeters. An average of twenty-two samples of water taken just before the chlorin tanks were installed showed about 300 colon colonies per hundred cubic centimeters. After the chlorination, the average total bacterial count of eighty-seven samples was 32, and the number of colon counts per hundred cubic centimeters, 10.4. Four chlorin tanks were placed about 50 yards upstream from the bathers and hooked up in series with ordinary garden hose, which was fitted at 3 foot intervals with 4 mm. glass petcocks. The hose was anchored to the bottom, the water varying from 6 feet to 18 inches in depth. The chlorin was turned on in the morning, with the appearance of the first bather, and kept on until the last one left at night. The cost of chlorin used was about $8 a day.

State Medical Meeting.—The one hundred and fifth annual meeting of the Michigan State Medical Society will be at Muskegon, September 8-10. There will be a symposium on "The History and Examination of the Patient from Various Points of View," in which, among others, Dr. Isaac A. Abt, Chicago, will discuss the subject from the pediatric point of view, and Dr. Joseph A. Stucky, Lexington, Ky., from the ophthalmologic and otolaryngologic point of view. Among the visiting physicians who will take part in the symposium on "The Kidney and Its Relations to Disease" will be Dr. Hugh H. Young, Baltimore, "Tuberculosis of the Kidney: Its Diagnosis and Treatment"; Dr. David S. Hillis, Chicago, "Eclampsia and the Kidney in Pregnancy," and Dr. Harry S. Gradle, Chicago, "Ocular Evidences of Kidney Diseases." Dr. Harvey L. Pollack, Chicago, will discuss "Primary and Metastatic Cancer of the Head," in the symposium on "Malignant Disease," and Dr. Fred T. Lord, Boston, "Prophylaxis and Therapeutics of Pneumonia" in the symposium on "Acute Infection and Infectious Diseases." All the sessions will be in one auditorium. The clinics will be at the Butterworth Hospital.

MISSOURI

Hospital News.—The St. Francis Hospital, Cape Girardeau, recently announced the opening of a maternity department ——Trinity Lutheran Hospital, Kansas City, will soon begin the construction of an addition which will double the present capacity of sixty beds.

Typhoid Outbreak.—Seventeen patrons of a dairy operating at Columbia have contracted typhoid recently, it is reported; the dairy has been closed. About a year ago a member of the family owning the dairy contracted typhoid and is said to be a typhoid carrier.

Osteopaths Cannot Make Examinations.—The city health commissioner of Kansas City has ruled, in connection with the administration of the new ordinance which requires a periodic examination of food handlers, that certificates of physical examination signed by osteopaths will not be accepted.

Supreme Court Strikes Out Charges.—The motion of the attorney general to strike out all charges against officials of the state board of health in the answer of the Kansas City College of Medicine and Surgery, recently filed to the ouster suit, was sustained by the supreme court of Missouri, August 4. The court also overruled the motion that the case be transferred to the circuit court of Jackson County and be tried by jury (The Journal, August 15, p. 522).

St. Louis Medical Society Starts Building.—The cornerstone of the new two-story, fireproof building of the St. Louis Medical Society was laid, July 16. The new home will provide for the library, the administrative offices, and an assembly room in the basement accommodating about 400 people. The present structure, costing about $175,000, will be enlarged, when funds are available, by the erection of an auditorium with accommodations for 1,000 people which will bring the total cost to about $300,000. Dr. Amand N. Ravold presided at the laying of the cornerstone, in the absence of the president, Dr. Fred W. Bailey, who was in Europe. For seventy-one years the St. Louis Medical Society held meetings in various buildings; then in 1906 an auditorium was built on ground leased from the St. Louis Medical Library, and seven years later the St. Louis Medical Library Association and the St. Louis Medical Society united, the latter assuming all the obligations of the former and guaranteeing the continuance of the library. It was the need for adequately protecting this library of 25,000 volumes that prompted the society to erect a part of the new building at once. The old building is now not only a fire hazard but is overcrowded.

NEW HAMPSHIRE

Surgical Club Meeting.—The New Hampshire Surgical Club will hold its twenty-seventh annual meeting, Monday, August 31, at the Wentworth Hotel, Portsmouth. The afternoon speakers are Dr. James F. Mitchell, professor of surgery, George Washington University Medical School, Washington, D. C.; Dr. John H. Long, Brooklyn; Dr. John F. Gile, Hanover, and Dr. Emery M. Fitch, Claremont. As usual there is a week-end get-together for members, families and guests, comprising a fishing trip, August 30, starting at 10 a. m., a national amateur women's swimming contest in the Wentworth pool, August 28-29, a continuous sight-seeing trip Sunday and Monday, and a golf match Monday afternoon. The Portsmouth Medical Society has appointed committees to assist with arrangements.

NEW YORK

Dr. Patterson Resigns.—Dr. Christopher J. Patterson, for sixteen years in charge of the Marshall Sanatorium at Troy, has tendered his resignation to the board of directors, effective as soon as a successor is appointed. Dr. George S. Amsden, Albany, has been appointed temporarily in charge.

State Journal Employs Advertising Manager.—The Medical Society of the State of New York, through its publication and executive committees, has arranged for a full-time advertising manager for the *New York State Journal of Medicine*, and appointed Mr. Joseph Tufts, who for a number of years has been connected with the *Journal* on part time.

Opinion of Attorney General.—Citizens and officials of Otisville are said to have supported a proposed ordinance in that village which would exclude from the municipality persons having tuberculosis who were patients in a certain sanatorium near the village. In an opinion requested by the state department of health, the attorney general said in part that the proposed legislation is discriminative, not reasonable and is an unwarranted infringement of personal liberty; it prohibits the carrying on of lawful business not necessarily a nuisance, and deprives people of their property or the full enjoyment thereof without due process of law.

Lectures on Obstetrics.—A course of six lectures and demonstrations was given to members of the Jefferson County and St. Lawrence County medical societies under the auspices of the state department of health, which met the necessary expenses. Nearly all physicians in both counties attended, some driving 35 miles. According to the *New York State Journal of Medicine*, each lecturer gave his talk and demonstration twice—in the afternoon at Ogdensburg, in the evening at Watertown. The subjects were (1) Prenatal Care, (2) Management of Normal Labor, (3) Postpartum Care, and (4) Pathology of Pregnancy. The local physicians supplied cases for demonstrations. The average attendance at each lecture was about forty-five. Similar courses in other counties may be arranged through the chairman of the Committee on Public Health and Education of the Medical Society of the State of New York, Dr. C. A. Gordon, Brooklyn.

New York City

Site for Veterans' Hospital.—Surg. Gens. Merritt W. Ireland, U. S. Army, and Edward R. Stitt, U. S. Navy, Dr. William A. White, superintendent, St. Elizabeth's Hospital, Washington, D. C., and Director Hines of the Veterans' Bureau were in the city, August 5, to select the location for the new Veterans' Bureau Hospital in the metropolitan district for neuropsychiatric patients.

Vaccination Buttons.—The city health department has decided to issue to school children who have been vaccinated against smallpox a button which proclaims that the wearer has been protected against this disease. The plan is to enlist the aid of school children in furthering vaccination, and, if it proves successful in an intensive campaign to be started in the middle west side section of the city, it will be used more widely and also as a means of prevention against other infectious diseases. The committee in charge of the campaign has decided to publish a weekly pamphlet, distribute circulars, advertise in the newspapers, and give short talks at moving picture theaters.

Institute for Crippled and Disabled Men.—This institute conducted an outing, July 24, for about 550 cripples who had been in training classes at the institute. The new river steamer *Chauncey M. Depew* was chartered for the occasion. The day was spent on the Hudson, the party going as far as West Point, and at the recreation grounds at Indian Point. Each cripple was permitted to invite a guest. The employment bureau of the institute made 475 placements during the first six months of this year, which is eighty-one more than the total for 1924. If these positions had been secured through commercial employment agencies, the cripples would have had to pay more than $8,000 in fees; 473 new applicants sought work through the institute during this period; of these the state sent 189, hospitals forty-eight, and social service agencies ninety-six.

NORTH CAROLINA

Homicides.—The state board of health has received reports of 299 deaths by homicide in the state in 1924, ninety-four of which were of white persons, 201 of negroes and four of Indians; 235 were killed by fire arms and forty-seven by piercing instruments.

Children's Clinic.—Dr. Oscar L. Miller, chief surgeon, state orthopedic hospital, Gastonia, held a clinic at city hospital, Bryson City, last week which was attended by thirty-three children from five counties. In fifteen of these cases the ailments were regarded as curable.

Optometrist Sues Society.—The suit of W. H. Dula, optometrist of Lenoir, against the state optometric society for damages of $25,000, has been transferred from Caldwell Superior Court to Iredell County for trial. Dula was expelled, it is reported, from the society for "unethical advertising." He alleges that he received the summons to appear before the society to make answer to the charge, but was delayed and failed to reach the meeting at the designated hour.

Posthumous Award of Medal.—Formal notification from the War Department of the posthumous award of the distinguished service cross to Lieut. Urbane F. Bass, Medical Corps, Three Hundred and Seventy-Second Regiment, Ninety-Third Division, A. E. F., formerly of Fredericksburg, Va., was recently received by his relatives in Raleigh. Dr. Bass was mortally wounded while rendering first aid under fire at Menthois, France, Oct. 6, 1918, both legs being amputated near the hip by a shell.

Fire Risk in Private Hospitals.—The state fire marshal recently stated, it is reported, that "the fire risk in 1924 in private hospitals in North Carolina was higher than the risk in filling stations and in cafés." Among eighty-seven private hospitals, there were nine fires, each necessitating the removal of all patients; in five of the nine, the destruction exceeded 50 per cent.; three hospitals were totally destroyed, and in one case three patients lost their lives. The fire marshal advised the conversion of the older hospitals into fire-proof structures. Hospitals now under construction in the state are almost without exception being built of fire-proof material.

PENNSYLVANIA

Personal.—Dr. James L. Cochran, Connellsville, was elected president of the Association of Baltimore & Ohio Railroad Surgeons, at its recent meeting in Philadelphia.——Dr. Theodore B. Appel, Lancaster, has been named medical director of the new Rossmere Tuberculosis Sanatorium.——Dr. Herbert A. Arnold, Ardmore, was elected department commander of the United Spanish War Veterans, Department of Pennsylvania.

Loan Fund for Students.—The Grand Commandery of Knights Templars of Pennsylvania approved an Educational Loan Fund at the annual meeting in Wilkes-Barre recently, and the committee to administer the fund has made its first report. The fund is to be used to assist students in acquiring an education. Fifty-six students, some of them medical students, are being aided; after the first year's experience it has been decided to confine aid in the future to juniors and seniors.

New Medical Center.—Plans for the erection of a $14,000,000 center at the University of Pittsburgh were announced, August 9, by the medical committee of the university. The group will include the Presbyterian, Children's, Elizabeth Steele Magee, Montefiore and the Eye and Ear hospitals, in connection with which there will be a $2,000,000 medical unit. The plan will be financed by the respective hospitals joining the unit, whose combined capacity will be 1,350 beds.

Pneumonia in Pittsburgh.—The director of the department of public health of Pittsburgh, Dr. C. J. Vaux, reported at the recent public health meeting of the Allegheny County Medical Society that isolation and quarantine for pneumonia were inaugurated in that city, April 1, 1924, and that in the first year of quarantine there were 4,503 cases, of which 1,860 were fatal, a case mortality of 41 per cent. The number of deaths was 245 less than in the preceding year and, based on the mortality percentage, the number of cases was 600 less. About 70 per cent. of the citizens of Pittsburgh who had pneumonia were treated in their homes, with a case death rate of 38 per cent., and about 30 per cent. of the citizens who had pneumonia were treated in hospitals, with a case death rate of 45 per cent. There were 341 nonresidents treated for pneumonia in hospitals, with a case mortality of 54 per cent.

Health Department News.—The state health department will officially take part in Philadelphia's sesquicentennial exposition. Notices have been forwarded to all bureau and division chiefs requesting suggestions for the exhibit.——During August, the state secretary of health announced the opening of district offices of the bureau of engineering in Philadelphia and Williamsport. The Philadelphia district includes Bucks, Montgomery, Chester and Delaware counties and the city of Philadelphia. The Williamsport district includes Lycoming, Clingon, Centre, Clearfield, Elk, Cameron, McKean, Potter, Tioga, Bradford and Sullivan. These offices will supervise water purification and sewage treatment works, and investigate typhoid outbreaks, housing conditions, major nuisances, highway water supplies and pollution of streams.——Forty-five physicians, representing the state in as many counties, were called into a conference in August by the secretary of health to formulate plans for the development of county health associations, composed of lay-workers to cooperate with the local board of health. The purpose of this action was to standardize health activities throughout the state by the adoption of principles acceptable to boroughs, townships and the state department of health. Dr. Edgar S. Everhart of the central office is in charge of the organization of these county health units.——Russell Tewksbury has been appointed acting registrar of the department and head of the bureau of vital statistics.——Dr. Charles W. Many has been appointed full-time county medical director for Bucks County.

TENNESSEE

Personal.—Dr. Paul W. Foster has succeeded Dr. James A. Becton as head of the City View Sanatorium. Dr. Becton will go to Birmingham, Ala., to open a psychopathic hospital.

Society News.—The Memphis and Shelby County Medical Society was invited to hold its August 4 meeting in the school house at Capleville, where Dr. Ferdinand M. Malone and the citizens of Capleville entertained the society with a picnic dinner. The attendance was the largest on record during a summer month.

Hospital and Health Survey.—Dr. Haven Emerson, New York, is making a health and hospital survey of Memphis and Shelby county at the invitation of the mayor of Memphis. He has mailed a questionnaire to the physicians, which the *Memphis Medical Journal* considers gives the local medical profession a hearing in a matter of great importance to the community.

Ban on Narcotic Reregistration Removed.—Federal Judge Gore, Nashville, August 5, set aside the ruling of the internal revenue commissioner, Washington, that physicians convicted of selling narcotics could not again be issued certificates to prescribe these drugs. Judge Gore's order, it is reported, requires the internal revenue collector of the state to issue the necessary certificates to physicians and holds the order of the commissioner void (The Journal, August 15, p. 527).

TEXAS

Society News.—At the recent annual meeting of the Houston Ophthalmological and Oto-Laryngological Society, Dr. Palmer M. Archer, Houston, was elected president; Dr. Nicholas L. Dudley, Goose Creek, vice president, and Dr. W. Marcel Strozier, Houston, secretary. The society meets the first Thursday of each month on the roof of the Keystone Building, at 8 p. m.

VIRGINIA

Medical Extension Work.—The division of extension of the University of Virginia, Charlottesville, has planned to undertake medical extension work in all parts of the state which will give special attention to children, including orthopedic work for crippled children and the usual pediatric work for those who are ill. It is planned to have nurses travel throughout the state to instruct expectant mothers in the care of children and to conduct a postgraduate institute of instruction for physicians.

WASHINGTON

Hospital News.—The Tacoma General Hospital will be enlarged by the erection of a new $200,000 wing, two floors of which will be for private rooms and the third and fourth for obstetric cases.

State Medical Meeting.—The annual meeting of the Washington State Medical Association will be in Seattle at the Olympic Hotel, September 17-19. Among the visiting speakers will be Dr. Henry A. Christian, Boston; Dr. John S. Lundy, Mayo Clinic, Rochester, Minn., and Drs. Ellis W. Jones and Isaac H. Jones of Los Angeles. A complete program will be mailed to each member two weeks in advance of the meeting.

WISCONSIN

Course for Technicians.—With the cooperation of the Milwaukee section of the American Radiological Society, Marquette University has arranged a course for radiologic technicians which has the approval of the American Roentgen Ray Society and the Radiological Society of North America. The course will cover one year of full time.

Rulings of Attorney General.—Attorney General Ekern has ruled that persons who are financially unable to provide proper treatment for a deformity or ailment, although they own some property, may be admitted to the Wisconsin General Hospital at Madison as public patients.——The attorney general ruled also that the sale of herbs by an Indian medicine woman who was about to dispose of them in the city of Fond du Lac would be unlawful; also that a woman who represents herself as able to tell persons having rheumatism or other ailments and what herbs would assist them, and who sells such herbs, violates the state medical law.

CANADA

Medical Election.—The Canadian Medical Council recently elected Dr. Forrest B. Leeder, Victoria, as president-elect of the Canadian Medical Society for 1926-1927. He will assume office at the fifty-seventh annual meeting in Victoria next year. Dr. Alexander Primrose, Toronto, was elected chairman of the council, Dr. Alfred T. Bazin, Montreal, treasurer (reelected), and Dr. Thomas C. Routly, Toronto, general secretary (reelected). The council accepted a grant of $30,000 from the Sun Life Insurance Company of Canada to carry on postgraduate extension lectures throughout Canada, which will be directed chiefly to help rural physicians keep abreast of advances in medicine.

GENERAL

National Board of Medical Examiners.—A total of 502 candidates registered for the June examinations of the board, which were held in thirty Class A medical schools throughout the country; some of these repeated certain subjects in which they previously had not received passing grades, and others took one or two subjects to complete a part previously taken. The September examinations in Parts I and II will be held from the 16th to the 18th. August 15 was set as the latest date for the receipt of applications for this examination in Part I from candidates not already registered.——The second annual meeting of the diplomates of the National Board was held at Atlantic City, May 28. Dr. Lawrence W. Smith, Boston, newly elected president of the National Board Diplomates, among other, addressed the meeting; a committee was authorized to draft a constitution and by-laws for consideration at the next meeting in Dallas, Texas, at the time of the annual session of the American Medical Association.

American Society of Tropical Medicine.—At the twenty-first annual meeting of this society in Washington, Dr. Aldo Castellani, professor in the London School of Tropical Medicine, London, among others presented a paper on "Parenteric Fevers"; Dr. R. Kawamura of Niigata Medical University of Japan, on "Japanese River Fever"; Dr. Raymond E. Scott, U. S. Army, on "Black Madura Foot"; Dr. Richard P. Strong, Boston, on "Medical Results of the Amazon Expedition in 1924," and Dr. Henry J. Nichols, U. S. Army, on "A Note on Cross-Immunization in Syphilis and Yaws." Dr. Henry R. Carter was elected honorary *president*; Dr. Joseph F. Siler, U. S. Army, president; Drs. George C. Shattuck and Charles S. Butler, vice presidents; Brayton H. Ransom, Ph.D., secretary-treasurer; Dr. William E. Deeks, councilor for five years, and Dr. Henry J. Nichols, editor. Dr. Nichols reported that the editorship of the *American Journal of Tropical Medicine* should be "a full-time matter" and that the present plan is regarded as temporary until better arrangements can be made.

First International Malaria Congress.—Under the patronage of the Italian government, the First International Malaria Congress will be held in the Exhibition Palace, Rome, Oct. 4-6, 1925. The members of the executive committee are E. Marchiafava, V. Ascoli, A. Bignami, A. Dionisi, B. Gosio. M. Sella, G. Bastianelli and A. Nazari. All medical men are admitted to the congress, but every member must pay a fee to the secretarial office. The official languages will be English, French, German, Italian and Spanish. General reports will be translated into English and French before the meetings; supplemental reports will be printed in one language only. Manuscripts are to be sent to the secretary, A. Nazari, 14, Via XXIV Maggio, Rome, Italy, before September 1. The subjects for discussion thus far arranged are: (1) Anopheles and Malaria; (2) Biology of the Parasites; Unicity and Plurality of the Parasites; (3) The Alkaloids of Quinin and the Therapy of Malaria; (4) Epidemiologic Factors and Antimalarial Measures; (5) Propaganda Statistics, and (6) Inoculation Fever.

FOREIGN

An Advanced Course in Pathologic Anatomy.—Under the direction of Prof. G. Roussy, with the collaboration of professors from several French universities, the University of Paris Faculty of Medicine announces an advanced four weeks' course in pathologic anatomy, to begin, Monday, October 5, at 3 o'clock, and to continue every day except Saturday according to a fixed program, with special topics assigned for each day. The course will be held in the laboratory of pathologic anatomy. The lectures on theory will be "public." The demonstrations and the practical drill work will be reserved for those who are regularly enrolled. In the morning, field trips to the various services of the laboratories of Paris will be organized for the benefit of students from the provinces and from foreign countries. The fee for the course is 150 francs. French and foreign physicians and advanced medical students will be admitted to the course. The number of hearers will be limited. Inquiries and requests for registration should be addressed to Dr. Leroux, 21 Rue de l'Ecole de Médecine, Paris.

Personal.—The Bordin prize of the Académie française has been awarded this year to Dr. Maurice de Fleury, a member of the Académie de médecine.——The fund recently presented to Prof. G. Bolognesi, Siena, has been applied by him to improve conditions in the children's clinic. He accepted for himself personally only an album and a souvenir gold medal.——The English Dermatological Society invites in turn from the allied nations some dermatologist to lecture each year. Prof. P. L. Bosellini, Rome, followed this year the American, the late Dr. J. A. Fordyce, and the French Dr. Darier.——A bronze statue of Prof. L. Mangiagalli was recently unveiled at Milan; the ceremonies concluded with a banquet. He has reached the academic age limit.——A gold medal was presented to Prof. V. Chiusoli recently, on his retirement after thirty-three years as chief of the public hospital at Ravenna.——Prof. J. Bordet, Brussels, was given an honorary degree by the Toulouse medical faculty recently.——Sir Thomas J. Horder, Bt., physician in ordinary to the Prince of Wales, has been appointed by the king to be a knight commander of the Royal Victorian Order, and Dr. Russell F. Wilkinson, physician to Prince and Princess Arthur of Connaught, has been appointed a member of the Fourth Class of the Royal Victorian Order.——Dr. Eugenio Mesonero Romanos, director of the *Vida Medica,* Madrid, is organizing a salon in which Spanish physicians can exhibit their paintings, sculptures and other works of art.

British Medical Association Election.—At the annual meeting of this association at Bath, July 17, Robert George Hogarth, C.B.E., F.R.C.S., England, was elected president for 1926-1927; Dr. Alexander Primrose, C.B., M.R.C.S., and Frederick N. Gisborne Starr, C.B.E., both of Toronto, were elected vice presidents; Mr. C. P. Childe, B.A., F.R.C.S., M.R.C.P.E., a former president of the association, was also elected a vice president as an expression of gratitude for services rendered. Dr. Henry B. Brackenbury was reelected chairman of the representative body. It was agreed that the annual meeting in 1927 be held at Edinburgh and be part of the Lister tercentenary celebration. The report of the treasurer showed an expenditure of £113,000, which was a record for the association, but the surplus realized was more than £8,000, whereas his predecessor had budgeted for a surplus of only £5,000. The reserve fund of the association, Dec. 31, 1924, stood at £29,000. Extra copies of the *British Medical Journal* of the number of 120,000 had been supplied during the year and the expense of production had been kept down by the installation of linotype machines. The estimated total revenue for the next year was £125,000 and the total expenditure £121,000. The treasurer felt assured of the financial stability of the association despite the heavy liabilities undertaken in connection with its new home. At the annual meeting of the association in the assembly room, July 23, Sir St. Clair Thomson proposed the toast "Our Guests," which was responded to by Dr. William D. Haggard, Nashville, Tenn., President of the American Medical Association, and by Dr. A. J. Orenstein, Johannesburg, South Africa. The acting president, Mr. W. G. Mumford, proposed the toast "The King." Rt. Hon. Lord Dawson of Penn the toast "The City of Bath," the Marquis of Bath the toast "The British Medical Association," and Dr. Henry B. Brackenbury "The President."

Deaths in Other Countries

Hamilton Drummond, honorary surgeon, Royal Victoria Infirmary, Newcastle-on-Tyne, the son of Sir David Drummond, and president of the University of Durham College of Medicine, medical writer, was killed, June 27, in an automobile accident.——**Dr. R. Martin,** professor of anthropology at Munich and a pioneer in anthropometric calculations.——**Dr. E. Potherat,** honorary member of the surgical staff of the Paris hospitals, at an advanced age.

CORRECTION

Legion of Honor.—Dr. Chevalier Jackson, Philadelphia, writes that the report of his election on his recent trip abroad to the Legion of Honor, France, was an error. Dr. Jackson was made an honorary member of certain medical societies (The Journal, August 1, p. 364).

Government Services

Examination for Regular Army

An examination will be held, September 14-18, to determine the professional qualifications of applicants for commission in the medical corps, U. S. Army. To qualify for examination a person must be a male citizen of the United States, between 22½ and 31½ years of age, a graduate of an acceptable medical school, and have had one year's hospital training subsequent to four years of instruction in medical school (except those who have been an intern one year in a military hospital or served a year as a medical officer of the army between April 6, 1917, and July 1, 1919).

1. A career in the medical corps of the army offers favorable opportunities for the practice of medicine and surgery and the specialized branches. There are general and station hospitals where from 100 to more than 1,300 patients are treated. Not only diseases common to the United States but those found principally in tropical countries are observed in these hospitals, and every essential facility in the way of instruments, appliances, apparatus and remedies is furnished for diagnosis and treatment. 2. When commissioned, the medical officer begins at once to specialize in military medicine and surgery. He receives first a course of instruction at the Army Medical School where the latest developments in general medicine, tropical diseases, and the specialties, are reviewed. Unusually complete laboratory and library facilities and clinical material at Walter Reed General Hospital are available for instruction. 3. On graduation from the Army Medical School, students go to the field service school, Carlisle Barracks, Pa., for instruction. 4. From these schools young officers are stationed at the large military hospitals for duty. 5. Other courses are offered in advanced instruction in sanitation and public health at the Army Medical School, after a period of actual service, and at the School of Aviation Medicine. To those who demonstrate ability and inclination, opportunity is offered to attend the Command and General Staff School and the Army War College, where officers are trained for general staff work as applied to the medical service. 6. Officers are required to keep in the best physical condition, and all possible opportunities are given to this end. 7. Opportunity is afforded for service in the Philippine Islands, Hawaii, Canal Zone, Porto Rico and Alaska. 8. A limited number of officers are given graduate instruction in the great civil institutions of our country after they have demonstrated ability to profit by higher specialized training. 9. A career in the medical corps does not offer opportunity to become wealthy, but it offers comfortable living and a chance to develop to the highest extent professional ability, and to practice under pleasant conditions. 10. In the event of sickness or injury, treatment is given the officer and his family, and his pay continues at the same time. If permanent physical disability in line of duty results to an officer, he is placed on the retired list with three fourths of the pay he is receiving at the time of retirement. 11. Original appointment is in the grade of first lieutenant, with promotion to captain after three years' service, major after twelve years, lieutenant colonel after twenty years and colonel after twenty-six years. There are now fifty-three vacancies in the medical corps. Further information will be furnished on request to the Surgeon General, U. S. Army, Washington, D. C.

Typhus Fever at Fort Ringgold

The Surgeon General's Office, U. S. Army, reports that a case of typhus fever occurred at Fort Ringgold, Texas, during the week ending July 25, and that six cases of this disease have occurred at this post this year.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Aug. 1, 1925.

Unification of the Pharmacy of the English-Speaking Peoples

Nearly 500 delegates and visitors attended the British Pharmaceutical Conference at Glasgow. Mr. Edmund White, in his presidential address on "Recent and Coming Developments in British Pharmacy," referred to the society's decision to set up a laboratory for the biologic examination and standardization of remedial substances. With this, when the therapeutic substances bill should become a law, the society would be able to meet the demand for an institution competent to examine and issue certificates for therapeutic substances requiring standardization by biologic and physiologic methods. He referred to the movements being made by the health department of the League of Nations toward the standardization of certain preparations and drugs, and said that while unification of old methods and customs in various countries presented many difficulties, it was desirable to avoid divergences in new ones. The unification of chemical methods of assay was also much needed, not only from an international pharmaceutic standpoint, but for purposes of international commerce. A serious effort to unify pharmacy in the English-speaking communities would yield encouraging results at once. A comparison of the British Pharmaceutical Codex with the United States Pharmacopeia showed that the practice in the two countries ran on similar lines, and the time had now arrived when our great overseas dominions, Canada, Australia, New Zealand and South Africa, should be invited to take a more active share in molding the destinies of pharmaceutic practice. Much could be done to create a high standard of ethics, both commercial and professional; to codify the administration of pharmacy law; to raise the standard of education; to encourage reciprocity in professional qualification, and so to bring about free and unrestricted intercourse between all parts of the empire. He believed that in the future they would see the various pharmaceutic societies sending their delegates to an empire conference or even to a conference of the English-speaking communities. This scheme, which was suggested for pharmacy, might well be extended also to all trades and professions. It would create an atmosphere and a community of thought and practice throughout the empire which would act far more effectually as a cementing influence than any amount of pious resolutions or legal enactments.

Rag Flock Regulations

The manufacture of flock for upholstery from dirty rags is prohibited by law. From time to time samples of flock are taken for analysis. Recent cases, in which a firm of upholsterers and a manufacturer of flock were summoned for unlawfully having in their possession flock manufactured from rags, intended to be used for upholstery, which did not conform to the standard of cleanliness prescribed by the rag flock regulations, are of interest. Analysis showed that one sample contained 169.9 parts of chlorin per hundred thousand in the form of soluble chlorids, whereas under the rag flock regulations only 30 parts are permissible, thus showing that the sample had not been properly washed. The flock was undoubtedly made from articles of clothing, etc., and it may therefore be taken that the origin of the chlorids was organic matter. It was suggested by the defendant that the clothing might have been worn by men in bacon factories or salt works. Also many of the sacks used for packing the flock were made out of bacon wrappers, and although the wrappers were washed it was impossible to remove all the salt from the canvas. A well washed sample of flock need not contain more than from 5 to 10 parts per hundred thousand. The limit fixed by the regulations is a necessary protection to the public, for although it is not impossible that the source of the chlorin might occasionally be clothing worn in a salt works, the probability is that its source is perspiration and urine. In order to show how objectionable the presence of soluble chlorin may be, the amount found in this sample, when expressed in terms of perspiration and urine, shows that each pound of flock might be contaminated by about 14 ounces of perspiration or about 7 ounces of urine. The magistrates decided in this instance to convict, and imposed a fine of $25 and costs.

Another class of flock known commercially as fiber mixture was the subject of the following case. Analysis showed that it contained 904 parts soluble chlorin per hundred thousand and to consist of coir fiber (coconut fiber) and jute fiber. The jute, it was contended by the prosecution, was not raw fiber, but had been prepared by passing old gunny bags, bacon wrappings, etc., through the ragging machine. The excessive amount of chlorin, with the smell of the material, showed that it was unwashed. A consulting chemist, called by the defendant, stated that the high chlorin content was to be expected in view of the proportion of coir fiber present, as this was prepared by a process that involved steeping in salt water, in the course of which it took up a quantity of common salt. The soluble chlorin, therefore, did not indicate the presence of harmful, dangerous or undesirable substances. For the prosecution it was pointed out that in a previous case it had been laid down that rag flock was made from woven material and that pieces of bagging which had escaped the disintegrating action of the ragging machine had actually been found in the sample, thus proving the presence of woven material. The magistrates held that the charge had been proved and decided to convict.

In a similar case the sample was found to contain 243 parts of soluble chlorin. Here again the prosecution contended that the jute was not raw and that there were pieces of woven material in the sample. They also showed that only a small proportion of the chlorin out of the 243 parts was derived from the coir fiber. The excess of chlorin must therefore have been derived from the bagging and showed that it was unwashed, and it was pointed out that "dirt weighed" and that it was to the advantage of the manufacturer not to do too much washing of the material, as this was a rather expensive process. The defense stated that the material consisted of coir fiber, raw jute and flax, and about 5 per cent. of pieces of woven material, the last being derived from a piece of Hessian cloth used to feed the fiber into the machine. The firm was convicted, but the conviction was reversed by the high court. The whole point turned on the meaning of the act of parliament and whether this sample was "flock manufactured from rags" within the meaning of the act.

Self-Willed Children

Speaking on "The Psychology of the Toddler" at the Summer School of Maternity and Child Welfare, Dr. J. A. Hadfield said that there was an intimate relation between will and temperament. Weak will was very often purely temperamental. It was the self-willed child, if properly treated, who developed into the strong-willed man. One must never squash a self-willed child, or it will develop into a weak-willed person. If one wants a child to be healthy in later life, one should encourage it in its activities, and if a child wants to be naughty, teach it how to be naughty. If the child wants to build, give it the opportunity to build. If it wants to fight, give it the opportunity to fight, and if it wants to possess, give it the opportunity of possessing something. At the age of 3 years a child began to learn self-discipline and self-mastery. It was about as far as the imagination of some parents went to drill the child till it began self-mastery and self-discipline, but these qualities did not come wholly from without. They came from within, and one of the ways in which they came was through a desire for achievement. When 2½ to 3 years old, a child passed through the stage of suggestibility. It did things because Daddy did them. Its motto was "What is good enough for Daddy is good enough for me." At 4 it passed from suggestibility to the age of independence.

Boycott of Army Medical Service by British Medical Association

The Royal Army Medical Corps has of late been failing to attract recruits from the profession, for a very good reason. By some technicality, under a warrant of 1919 the retired pay of many majors of twenty years' service can be reduced below the $5 a day provided for by the warrant under which they joined. The complainants have no redress. They can only hope that the consequences of official wrong-doing will be inconvenient enough to induce repentance. The British Medical Association, on the report of its naval and military committee, has passed a resolution which should prick even official self-complacence. It says that "a serious breach of faith has been committed," and declares that the Association shall no longer recommend recently qualified physicians to enter the army and shall no longer publish the terms and conditions of the service in the journals until the council is assured that this and other matters under negotiation have been settled to its satisfaction.

Research Work on Distemper

The *Field* (the journal of country life) sometime ago raised a fund and appointed a scientific committee to investigate the distemper of dogs. The research has been carried out by the fund at the kennels and dog hospital on the premises of the National Institute for Medical Research, Mill Hill. An interesting report has just been issued, together with an appeal for the completion of the $125,000 which, it is estimated, will be necessary to carry the work on until the end of this year. Valuable information has been obtained as to the nature and peculiarities of distemper, and the report proves that the popular idea of the symptoms of the disease is wrong. It is pointed out that it is not necessary for a dog to have a purulent discharge from the eyes and nose, chorea or any other of the usually accepted symptoms for it to be suffering from distemper and to be dangerous to other susceptible dogs. Four days elapse between infection and the onset of symptoms. Then the temperature rises abruptly to 104 F. or more, the dog may vomit several times, and it lies about the kennel obviously feeling very ill. After twenty-four or forty-eight hours the dog returns to the normal, and a further high temperature is delayed for another twenty-four or forty-eight hours. It may be accompanied by the discharge from the eyes and nose and by chorea, but the latter has been known to be delayed until three weeks after the original infection. The fact that no bacterial organisms have been discovered in the infective agent is in agreement with the results of Garré and opposed to the conclusions of McGowan and Ferry. The organism described by these last observers has yet to be found by the council's investigators. The opinion has been formed that the virus may be found to be filtrable under certain conditions and not under others. The hope has already become appreciable that a mild form of virus may be obtained which will secure immunity in dogs to the more virulent forms of distemper by the use of a serum prepared for the purpose by the ordinary methods. Special work is being concentrated on these lines.

BUDAPEST

(From Our Regular Correspondent)

July 30, 1925.

Legislative Measures Against Food Adulteration

The board of sanitation of the city of Budapest recently discussed food adulteration. The chief sanitary inspector stated that an important field is now opening to the sanitarian in the investigation of manufactured food products. Competition in trade has become so keen and the substitution of inferior constituents in foods so general that the only remedy will be the passage and enforcement of a strict food law. Such a measure has already been before the government, but it lacked the support of an aroused public opinion. Much the same opportunity is offered in a campaign against quacks and venders of secret nostrums.

Society for the Study of Alcohol and Narcotics

A society was organized in Hungary about twenty years ago, under the title of Temperance Society, composed of physicians interested in the study and treatment of inebriety and the action of alcohol and narcotics in health and disease. The society abandoned active work in the years following the World War but now intends to resume activity. Its plan is to promote scientific studies of the effects of alcohol, to secure more accurate investigations of the diseases due to the use of alcohol and narcotics, to correct the present empiric treatment of these diseases by secret drugs and so-called specifics, to secure legislation prohibiting the sale of nostrums claiming to be absolute cures and containing dangerous poisons, and to encourage special legislation for the care, control and medical treatment of addicts. Physicians are everywhere called on for advice and authoritative facts concerning the causes, prevention and cure of drug addiction.

The Coagulation of Milk

Dr. György, a Hungarian, at present lecturer to the university at Heidelberg, has carefully worked out the phenomena that underlie the coagulation of milk. He says that milk is curdled by the following causes: (1) turning sour on standing; (2) the latter together with heating; (3) the addition of acid to fresh milk; (4) fresh milk heated to from 110 to 130 C. in a closed tube; (5) fresh milk heated with calcium chlorid; (6) the addition of rennet to fresh milk; (7) the heating of milk to which too small a quantity of rennet has been added to effect coagulation; (8) coagulation during a storm (the cause of this is not yet understood); (9) electrolysis, as described by Dr. A. S. Löwenhart about fifteen years ago. In 1, 3, 4, 8 and 9, the coagulation is to be attributed to an acid which liberates casein from its union with calcium. According to Hammersten, the effect of rennet is to cause a splitting of the casein into lactalbumin and paracasein. This is very similar to casein and differs from it in being coagulated by calcium salts at ordinary temperature, while casein requires higher temperatures. The metals may be divided into three groups with respect to the action of this salt on casein and paracasein. The first group, which contains the strongest metals, such as sodium, precipitates neither casein nor paracasein. The second group, of which lithium is an example, precipitates paracasein rapidly from its solutions at room temperature, but casein only after standing a long time at 40 C. or higher. The third group coagulates both bodies promptly at room temperature, and includes all the other heavy metals, such as iron. The precipitating power increases progressively with the transition from the strongest to the weakest metals. The precipitation of paracasein by colloidal solutions as acids, salts and alcohol is brought about more easily than that of casein. There is no evidence that casein and paracasein are distinct substances, for all their differences are of a physical nature and indicate that these two substances are modifications of one and the same thing. Decalcified milk is coagulated by salts of such metals as calcium, strontium and barium, which probably indicates that the coagulation, if mild, is largely dependent on a change in the arrangement of mineral constituents. Acids are only the indirect cause of coagulation; the direct cause is calcium. The addition of ammonium oxalate to acid milk inhibits coagulation.

VIENNA

(From Our Regular Correspondent)

July 27, 1925.

Proposed Changes in the Medical Curriculum

A committee, composed of members of the ministry of instruction for the universities of Austria and the medical faculties, has recently elaborated a memorial on modifications in the medical curriculum. A chief demand is for the creation of a year of practical hospital training—not, as in Germany and elsewhere, for graduate physicians but for the students immediately before their graduation; that is to say, before they receive their diploma as "Universae Medicinae Doctor." Furthermore, it is proposed that the student be allowed to pass a single test in general science in place of separate tests in zoology, botany, physiology and chemistry. It is planned to place the test in general science at the end of the first or second year. Such a modification will give the student more time for anatomy. It is urged that greater weight be attached to practical activities at the bedside. It is proposed also that students be given more practice in modern methods of examination of patients, the idea being to assign to each medical assistant in the clinic or the hospital wards a definite number of students to instruct every month. The students will accompany him on his daily round and will receive direct personal instruction. Serology and bacteriology, it is thought, should receive more attention than in the past; also medical chemistry and experimental pathology. The medical course, which has heretofore required five and a half years to complete, would be extended to six and a half years. The lengthened course will, it is held, serve to check the undue registration for medical study, which has occurred during the last ten years, and will, at the same time, afford a better opportunity to become well grounded in the newer branches of medical science. Since, after graduation, every physician has the right to treat patients independently, every student after completing his studies has been able to found a private practice, without reference to his real skill and ability.

Difficulties of the Largest Krankenkasse, or Health Insurance Society, in Austria

The so-called *Bundeskrankenkasse,* which includes in its membership all government officials and members of their families, and which had entered into an agreement with the physicians that promised to bring lucrative advantages to both parties to the contract, has suddenly got into financial difficulties, which it is proposed to solve at the expense of the physicians. The fees of specialists (*Fachärzte*), which are about twice as high as those which general practitioners receive from the *Krankenkasse,* are to be materially reduced. Likewise, members of this health insurance society will henceforth find it more difficult to secure the services of specialists. The physicians are vigorously opposing these plans for reorganization, and demand that the "hypertrophic" forms of supervisional control be suppressed. It is characteristic for all sociopolitical institutions that physicians are expected to bear the brunt of any difficulties that arise. In connection with the organization of a new social insurance in the form of *Krankenkassen* for "employees and wage-earners," which is now a subject for discussion in parliament, physicians are again expected to give their services at a great sacrifice. This time, however, the physicians are not only forewarned but forearmed, and are determined, if necessary, to risk a trial of strength, in order to discover whether, against the will of the whole profession, a law can be enacted and enforced. In a short time we shall see whether, in the difficult task of protecting the interests of workmen and employees in case of illness, the desires and the cooperation of the medical profession can be completely ignored.

Arm Band to Designate Persons Hard of Hearing, as Protection Against Street Accidents

Owing to the fact that in recent months several accidents have occurred on the streets of Vienna, which were traceable to the subnormal hearing of pedestrians, the police department has suggested that all persons whose hearing is subnormal shall wear a yellow brassard 10 cm. in width with three large round black spots. The "Vox" society, the Vienna organization of persons with subnormal hearing, has complied with the suggestion and has supplied all its members with brassards. It has also published a request that all institutions which treat or deal with ear affections (schools for deaf mutes, policlinics) follow their example. Especially since the war the number of persons suffering from defective hearing has increased greatly. The large number of cannon of heavy caliber used in the war, the many explosions, and also the infectious diseases resulting in middle ear affections have caused the organization in Vienna of the "Vox" society, which numbers 70,000 members and which essays to protect the interests of persons with subnormal hearing. During recent years, 12 per cent. of the traffic accidents have been due to subnormal hearing, so that the action of the police department is quite generally approved by physicians.

The Examination Center for Tuberculous Children

In the Vienna policlinic there was established three years ago a department for the examination of children whose lungs show signs of tuberculosis. Any child can be sent there. Thus far, 1,021 children have been examined and a diagnosis established. In 269 cases, or 26 per cent., no evidence of tuberculosis was discovered, although the referring authority —a school physician, the physician to a public welfare society, the physician of the juvenile bureau, or a private practitioner—held that such a diagnosis was justified. Of those examined, 622, or 61 per cent., were found to be infected, although on first examination no proof of an active affection could be noted. In forty-seven cases, or 5 per cent., there was evidence of a pleural affection; in seventy-two cases, or 7 per cent., there was tuberculosis of the lungs or hilum. Only eleven examinees, or 1 per cent., presented genuine (tertiary) pulmonary tuberculosis, which begins with catarrh of the apex and shows a tendency to induration and to cavity formation. It is evident, therefore, that the last mentioned type is rare in children, although it is more frequent in juveniles over 14 years old. All the children examined were subjected twice to the tuberculin test. Twenty-six per cent. were in good health. The children in whom the tuberculin test was negative were given also a roentgenologic examination. In this connection, it may be remarked that not only does the roentgenologic examination result negatively in certain instances in which the tuberculin test was positive, but that, vice versa, the tuberculin test was occasionally negative in the presence of an unequivocal tuberculous pleuritis. Special heed should therefore be given to such differences between the results of the roentgenologic examination and the tuberculin test. In eleven cases, a pleuritis could be established only by the roentgenologic examination (interlobar induration, mediastinal pleuritis). In twenty cases only clinical symptoms were observable. In sixteen cases, clinicians and roentgenologists were agreed as to the diagnosis. A primary focus was visible in the roentgenogram in twenty-two cases, or 5 per cent. of the infected cases in which a roentgenologic examination was made. In the rare cases of "tertiary" tuberculosis in children, the clinical findings are much more significant than the roentgenogram. Moist râles are heard although no corresponding dark area in the roentgenogram can be seen. The moist râles are very characteristic and very important—also when the roentgenologic test is negative—and especially at the apex of the upper or lower lobe. In seventy-two cases there were rather small but sometimes somewhat large foci in the lung tissue or in the glands of the hilum. In twenty-two of these seventy-two cases, the clinical findings were negative, the condition being revealed only by the roentgenologic examination. In nine cases rather severe tuberculosis existed although the roentgenologic evidence was not marked—but in such cases an increased prominence of the hilum alone must not be taken as proof of the presence of tuberculosis. Dr. Peyrer, who published this summary, emphasized that for the diagnosis of pulmonary tuberculosis the roentgenologic findings with moderately enlarged hilum prove nothing whatever; even calcareous shadows in the hilum must be interpreted very cautiously. No absolute reliance can be placed in the roentgenogram; the clinical findings and the tuberculin reaction are needed, since the way to errors is open. Roentgenologic evidence of an enlarged hilum is frequently found in noninfected children, and hence is not to be relied on.

RIO DE JANEIRO

(From Our Regular Correspondent)

July 15, 1925.

Nasal Fibroids in Leishmaniasis

Dr. P. Albernaz, otorhinolaryngologist in Jahu Hospital, São Paulo, has published an interesting study on fibroid growths of the nasal septum in three patients with leishmania infection. Such tumors have already been found in syphilis, tuberculosis, leprosy, chronic glanders and rhinosporidiosis. The leishmania nasal growth is rounded, smooth, hard and almost lusterless, and lies in the septum, between the tubercle and the mucosa of the naris. The color is dark, dirty rose and the surface is rather even. The tumor does not bleed to the touch in the mass itself, but is more liable to hemorrhage in its base. It is painless and sessile, the pedicle being rather long. It does not disturb except when causing anośmia through its large size.

There is no preference for any especial age, race or sex. In two of the cases it originated in the right side. Their appearance without perforation of the septum may be related to the greater resistance on the part of the tissues, attenuation of germ virulence or perhaps, as in the cases studied, insufficient treatment. In one of the three cases, a typical leishmania lesion was found inside the growth. In each case, the growth appeared after the skin manifestations healed, following a few injections of antimony and potassium tartrate.

Anniversary of the Academy of Medicine

The National Academy of Medicine, the oldest of all Brazilian scientific bodies, and next to the oldest in South America, celebrated its ninety-sixth anniversary, June 30. The session assumed befitting solemnity and was presided over by the secretary of the interior. The president of the academy, Prof. M. Couto, delivered an address on eugenic problems, emphasizing the rôle of health in human accomplishments. The first secretary, Dr. Belmiro Valverde, described the papers submitted during the year, and the official orator, Dr. Garfield de Almeida, recalled the merits of the members who had died during the year.

The academy gold medal was granted to Dr. A. Valerio for his monograph on sciatica. The president then read the list of prizes to be awarded in the coming year.

PRAGUE

(From Our Regular Correspondent)

July 28, 1925.

The Institute of Hygiene

The chamber of deputies has passed the bill creating the institute of hygiene in Prague, by joint action of the Czechoslovak government and the International Health Board of the Rockefeller Foundation. The institute, which will be under the ministry of health, will make investigations for the public health service, foster education in preventive medicine, and take care of the education of the health personnel. The government may create branches of the institute in provincial cities, especially where there are medical faculties. The ministry of health will create a special advisory council to the institute of hygiene. It was pointed out to the parliament that a modern health organization needs the closest contact with scientific investigators in preventive medicine. The opposition, including the communists, voted for the bill, which passed the house of deputies unanimously. The bill will come before the senate in September, and there is no doubt that it will be accepted without any material change. The date for the official opening of the institute has been set for the end of September.

Cooperation with the Health Section of the League of Nations

Dr. Ludvik Rajchmann, director of the health section of the League of Nations, visited Prague officially and delivered a lecture on the aims of this organization, July 11. The purpose of Dr. Rajchmann's visit was to discuss with the government authorities the creation of a special bureau to cooperate with the health section of the League of Nations. This proposal was first made by the Czechoslovak government, and the scheme will probably be accepted by other European countries.

The Education of Nurses

A committee appointed by the Red Cross has reported its study of the nursing situation in Czechoslovakia. The Prague School for Nurses, with its Czech and German branch, gives a two year course primarily training for bedside nursing. About fifty nurses are graduated from the school each year and could be readily absorbed by the general hospitals. Many nurses go into the services of the health centers and dispensaries, which sprang up in great numbers after the war, since these positions allow greater freedom with better financial returns. The nurses are being given preference in these positions by the physicians in charge of the dispensaries, in spite of the fact that they have very little public health training, because they stand much nearer to the education of an average physician than a trained public health worker. Besides the graduate nurses, the field of public health nursing has been occupied by the graduates of the Prague school of social work. This school was originally organized to prepare students for social work, but more and more public health topics were added, since it appeared that there is more need for public health workers than for social workers. The education given by this school was not sufficient in its practical training to make their graduates satisfactory public health nurses. The committee of the Red Cross recommended the merger of the school of social work with the school for nursing. The proposed school would have the first year of training common to all students, but during the second year, one half would receive training primarily in the hospital to prepare for bedside nursing, while the other half would go into dispensaries and would become public health nurses. As the committee was composed of the most influential people in nursing education, it is most probable that the recommendations will be put into practice.

Another committee is working in Brno to create a new school for bedside and public health nurses in connection with the medical faculty of that city.

Venereal Infections in the Army

The Czechoslovak *Army Medical Journal* recently published an interesting article by Col. Clement Zrunek on the venereal infections in the Czechoslovak army. Infections among recruits are recorded separately from fresh infections contracted in the army. The fresh infections are reported weekly in the same manner as other infectious diseases. There has been a remarkable reduction of the incidence of venereal diseases in recruits. The rate for all the venereal diseases per hundred thousand recruited soldiers fell from 831 in 1921 to 438 in 1922, 400 in 1923 and 314 in 1924. This can be taken as an index of the incidence of venereal disease among the civilian population, and shows a decrease of almost 60 per cent. for all the venereal diseases. The decrease in the incidence of chancroid was 80 per cent., of syphilis 75 per cent., and of gonorrhea 50 per cent. Colonel Zrunek explains this phenomenon as due to the return to normal conditions of civilian life with the soldiers returned to their families. The rate per hundred thousand of fresh infections in the army amounted for all venereal diseases to 2,661 in 1922, and 1,528 in 1924. For gonorrhea, the respective figures were 1,647 and 1,044; for chancroid, 236 and 122; for syphilis, 778 and 361. It is evident that hand in hand with the reduction of venereal diseases in the civilian population goes the reduction in the army. The fluctuations by weeks indicate the most dangerous periods for the contraction of venereal infections by soldiers. The peak of incidence occurs at Christmas time, which can be easily explained through the leaves of absence. However, at Easter, leaves of absence are afforded as many soldiers as at Christmas and are of almost the same duration, but there is no appreciable rise of the curve of incidence. The after war time is not suited to test the efficiency of antivenereal measures, and we shall have to wait until the natural decrease comes to a standstill. Then we shall see whether public health measures will lower the rate of incidence even further.

International Congress of Midwives

The first international congress of midwives, held in Prague from May 30 to June 1, was attended by delegates from Austria, England, Germany, the Netherlands, Poland, Roumania and Switzerland, and was presided over by Dr. A. Ostrčil, recently appointed to the chair of obstetrics at the Charles University in Prague. The congress recommended the creation of the International Union of Midwives, which was constituted immediately after the congress. The congress recommended that the education of midwives should include three years of special studies, as is the custom in Belgium and the Netherlands. The same preliminary education should be required as for the nurse. The education of the midwife should include theoretical and clinical training and also the social side of the problem. Social work for mothers and infants in the rural districts should be reserved to the midwives, while in the cities it should be organized in cooperation with the practicing midwives. The congress recommended that midwives should be included in national sickness, invalidity and old age insurance. The new law regulating the training of midwives in Czechoslovakia was brought before the congress by the representatives of the ministry of health. It requires a training of twelve months, with special courses of two months' duration for every midwife who has been in practice ten years.

BERLIN

(From Our Regular Correspondent)

Aug. 1, 1925.

Critical Observations on Gye's Cancer Researches

In an article in No. 32 of the *Deutsche medizinische Wochenschrift*, Professor Blumenthal, director of the Berlin Institute for Cancer Research, gives a series of critical observations on the results of Gye's cancer research, which appeared in the *Lancet*, July 18. In view of the importance of the cancer problem, I shall perhaps be justified in quoting very nearly verbatim portions of the Blumenthal article:

It would have been extremely interesting to learn the behavior of the virus cultivated from the mouse and rat tumors when it was added to the specific substance derived from mouse and rat tumors, but Gye's report does not enlighten us on this point. He merely mentions in the summary that the rat tumor 9, the mouse cancer 63 and Jensen's rat serum containing the specific substance of the Rous tumor may be used in place of the virus of the Rous tumor in the production of chicken sarcoma. He fails to state whether or not cultures derived from rat and mouse tumors will, on addition of the specific factor, produce likewise tumors in mice and rats. We must, however, secure such a positive result before we can, in agreement with Gye, accord to the virus any general significance for the cancer problem.

Now, as to cancer in man. There are three cases cited but they all deal with attempts to transfer the Rous chicken tumor. The three cases concerned were: a scirrhous cancer of the mammary gland, a sarcoma of the hip and an adenocarcinoma of the mammary gland. The experiments with the first two tumors resulted negatively, the third positively. These results show that in a case of human cancer, as well as in animal tumors, a virus was cultivated which resembled biologically the virus of the Rous chicken tumors.

Gye concludes from his experiments that he has found and demonstrated the cancer parasite in the form of an invisible virus. He admits, however, that he has not as yet adduced any positive proof for this conclusion. Before the evidence can be regarded as convincing, it will be necessary not only to propagate the parasite but also to prepare a culture of it, and, through inoculation from a definite portion of the culture, to secure further cultures with which tumors are produced. He thinks it is possible that there is not only one invisible virus but that there are several viruses corresponding to the various kinds of cancer. The substance that is derived from the animal itself and which is present in each tumor is specific in that it is the decisive factor not only for the particular species of animal but also for the variety of tumor; that is to say, that a filtrate from a sarcoma can make it possible for the parasite to produce only a sarcoma, while a filtrate from a carcinoma will give rise to only a carcinoma. The same would be true of the species of animal.

The significance of the results of Gye's cancer researches for the etiology of cancer is possibly impaired somewhat by the fact that the so-called chicken sarcomas are regarded by most pathologists as different from the sarcoma occurring in man and as being merely infectious granulomas. In any event, of all animal tumors they are, biologically, the farthest removed from human cancer. As evidence for the asserted regular occurrence of the Rous virus in the cancer tumors, a number of interesting illustrations are furnished which we owe to Barnard's discovery of a new optical instrument. The appearance of the propagated virus is, however, not of decisive significance for the etiology of cancer.

I am convinced that the reported results of Gye's researches are of paramount importance for the rôle of a virus or of a group of viruses in the pathology of tumors, though I do not believe that all the conclusions drawn are justified. It does not seem to me as yet proved that the virus cultivated from mouse and rat tumors must be regarded as a causative agent for these tumors alone. Is it not at least equally plausible that the virus together with a specific factor derived from mouse and rat tumors produces the same variety of tumors in these animals? The same reasoning applies to the formation of human cancer, for in the three experiments with the Rous sarcoma two resulted negatively. For that reason, I do not think it is permissible to ascribe the inorganic production of cancer by means of tar and other irritants to parasitic influences, as Gye, as the result of his researches, seems inclined to do. Gye holds that all irritants that have thus far been shown to influence cancer formation exert a specific action; that is, that they bring about such changes in the tissues as prepare the way for infection. The virus then penetrates the cells, takes up its abode, propagates and produces the growth. When we recall that Bloch, Yamagiwa and others secured 100, or nearly 100 per cent., of positive results in the way of cancer formation following applications of tar, we would be compelled to conclude that the virus must be ubiquitous. While that is not absolutely impossible, it has not as yet been shown to be probable.

That the study of the problem of invisible viruses has received new impetus through the researches of Dr. Gye and Mr. J. E. Barnard cannot be questioned. It is quite within the range of the results of previous researches on malignant animal tumors to endeavor to explain the tumor-producing qualities of not only animal but also vegetable parasites recognized as causative agents in cancer, by the assumption of such a virus. Borrel discussed that possibility in connection with the various organisms which he found in the tumors of animals and which he considered causative agents in cancer formation. Fibiger suspected a virus in connection with *Spiroptera neoplastica.* My collaborators and I raised the same question when we had cultivated our tumefacient strains from human tumors. We regard it as quite within the limits of possibility that the bacteria outside of and inside of the tumors are laden with a virus and that this virus is further propagated with the cultivation of the bacteria. In our opinion, it is probable that also other micro-organisms may take up the virus in question. Various parasites might, then, by reason of such a virus, acquire cancerogenic properties. Reichert, who reinvestigated at the Sächsische Serumwerk in Dresden the tumor-producing properties of our strains of bacilli, is likewise of the opinion that a virus may be associated with them. It must not be forgotten, however, that what Gye failed to accomplish—namely, to produce with a virus derived from human cancer cancer-like tumors in rats and mice—we succeeded in doing with our bacteria, the results having been confirmed by Reichert. We have been able to demonstrate the presence of these bacilli in a third of the cancer cases examined. The bacilli themselves were not directly demonstrable in the tumor but were found in the droplets that resulted on liquefaction of the tumor, which we, after the W. Becker method, had exposed to the sun's rays by means of a burning mirror.

The demonstration, for the first time, of cancer-producing parasites in human cancer and their cultivation in pure culture by Auler, Paula Meyer and myself is a piece of experimental evidence which investigators of the parasitic origin of cancer in man should not pass over in silence. It would, of course, mark a still further advance if their cancerogenic properties could be shown to be uniformly due to a definite virus or a group of viruses. While Gye and Barnard have not yet succeeded in making this demonstration, their researches constitute an important step in that direction.

Gye's demonstration of the significance of a second factor in the production of tumors is also in accord with our experiences in experiments with our neoplastic bacilli, according to which, besides diatomaceous earth, the addition of lymph from a cancerous organism was needed to produce transplantable malignant tumors. Also Reichert found that the injection of inactive filtrates of rat cancer stimulated to more rapid growth a tumor that had been produced by our bacilli. We, also, as did the English authors, compared the second factor with what in the spontaneous evolution of cancer is termed "disposition." That this second factor is as specific as Gye assumes, I am not prepared to admit, for, with the addition of lymph from human cancer, we produced in rats our transplantable malignant tumors and have since propagated them to the fifteenth generation. Special interest, it seems to me, attaches also to the discovery by Gye of the fact that the virus had to be cultivated anaerobically or that anaerobiosis favored markedly the propagation of the virus.

In this connection, I wish to call attention to the significance that Otto Warburg ascribes to the fact that cancer cells are anaerobic in contradistinction to normal cells. Warburg regards the lack of free oxygen at the site of cancer formation as of great import. This view is in agreement with the experiments of my assistant Hans Auler, which I discussed at Leningrad, May 19, according to which, among other phenomena, sections of carrots inoculated in an atmosphere poor in free oxygen showed signs of tumor formation, whereas in an atmosphere rich in oxygen no such signs developed. In the meantime, Hans Auler has undertaken numerous other experiments with plants, and has thus collected further evidence to prove the stimulating effect of an oxygen deficiency on tumor formation.

The purely experimental results of Gye are entirely in harmony with the findings reached in other ways. Not only the methodology but also the actual accomplishments constitute an important advance in the knowledge of the genesis of tumors. Although—in my opinion, at least—the researches of Gye have not as yet furnished us with an unequivocal solution of the problem of the origin of cancer, we can feel assured that the new methods and the facts thereby established will give a fruitful stimulus to future research.

Marriages

IOLAS M. HUFFMAN, Ravenna, Ohio, to Miss Margaret E. Foster of Washington, D. C., recently.

WILLIAM JOSEPH SWEENEY to Miss Ernestine Kirk Flanley, both of Wakefield, Mass., April 24.

ERNEST W. VEAL, South Jacksonville, Fla., to Miss Clara G. Gale of Jacksonville, July 27.

ROBERT LEO ELLISTON, La Salle, Ill., to Miss Florence Stunn of Yorkville, at Aurora, July 28.

CLAUDE L. SPENCER, Dallas, Texas, to Miss Phyllis Mae Haas of Fort Worth, July 4.

ROBERT S. BREAKEY, Ann Arbor, Mich., to Miss Judith Jenison of Lansing, July 11.

GEORGE A. STIMSON, Sandusky, Ohio, to Miss Miriam Mansfield of Detroit, July 30.

LEE DE CADY, St. Louis, to Miss Gracia Rowley of Carthage, Mo., June 28.

JAMES M. ERWIN, Calhoun, Ga., to Miss Phoebe Broadrick of Dalton, June 4.

ABRAHAM MEDJUCK to Miss Dorothy Schaffer, both of New York, August 9.

Deaths

George Fred Sutherland ⊕ Chicago; Rush Medical College, Chicago, 1920; clinical associate in pediatrics at his alma mater; member of the Chicago Pediatric Society; on the staffs of the Chicago Memorial Hospital and the Presbyterian Hospital, where he died, August 16, of ulcerative pharyngitis, phlegmon of the neck, and bronchopneumonia; aged 33.

Llewellyn Powell Williamson ⊕ Lieutenant Colonel, M. C., U. S. Army, retired, San Francisco; Missouri Medical College, St. Louis, 1897; member of the American Academy of Ophthalmology and Otolaryngology; served in the Spanish-American and World wars; aged 51; died, July 27, at the Letterman General Hospital, of carcinoma.

George Elmer Gorham, Albany, N. Y.; Hahnemann Medical College and Hospital, Chicago, 1874; member of the Medical Society of the State of New York; formerly on the staff of the Memorial Hospital; aged 75; died, August 1, at Kinco, Maine, of heart disease.

Charles Henri Leonard, Detroit; University of Wooster Medical Department, Cleveland, 1874; formerly emeritus professor of medicine and surgery, diseases of women and clinical gynecology, Detroit College of Medicine and Surgery; aged 75; died, July 31.

Floyd B. McBride ⊕ Coffeyville, Kan.; Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1906; past president of the Montgomery County Medical Society; aged 43; died suddenly, July 28, of heart disease.

James Henry Allen, Delphi, Ind.; University of Michigan Homeopathic Medical School, Ann Arbor, 1884; formerly professor of dermatology and venereal diseases, Hering Medical College, Chicago; aged 69; died, August 1, of pernicious anemia.

Levi Elijah Gardner, Homer, N. Y.; Long Island College Hospital, Brooklyn, 1892; member of the Medical Society of the State of New York; formerly health officer of Black River and Rutland; aged 67; died, July 31, following a long illness.

Alexander T. Stewart, Warnock, Ohio; Central College of Physicians and Surgeons, Indianapolis, 1898; member of the Ohio State Medical Association; aged 56; died, August 1, at the Ohio Valley General Hospital, Wheeling, W. Va.

Mark Leon Bailey, Carbondale, Pa.; Medical Department of the University of the City of New York, 1889; formerly on the staff of the Carbondale City Hospital; aged 60; died, August 1, at Hampton, N. J., following a long illness.

Thomas Newton Self, Cleburne, Texas; Medical Department of the Tulane University of Louisiana, New Orleans, 1893; member of the State Medical Association of Texas; aged 57; died, July 27, following a long illness.

James Richmond Fleming, Sinnett, Okla.; University of Nashville (Tenn.) Medical Department, 1900; member of the Oklahoma State Medical Association; aged 51; died, April 11, of diabetes mellitus and myocarditis.

Samuel Lowry Beard ⊕ Shelbyville, Ky.; University of Louisville School of Medicine, 1900; served in the M. C., U. S. Army, during the World War; aged 49; died, August 3, at Battle Creek, Mich., of angina pectoris.

Albert C. McGannon ⊕ Cleveland; Cleveland College of Physicians and Surgeons, Medical Department Ohio Wesleyan University, 1903; aged 44; was drowned, August 3, near Pakesley, Ont., Canada.

Pauline Barton Peeke, Cleveland; Cleveland Homeopathic Medical College, 1901; formerly adjunct professor of physical diagnosis at her alma mater; aged 64; died, August 2, at the Huron Road Hospital.

Donald J. McPherson, Palmyra, N. Y.; Hahnemann Medical College of Philadelphia, 1878; aged 73; died, July 25. at Clifton Springs (N. Y.) Sanatorium, of pneumonia, following an operation.

John Wesley Hoover, Sapulpa, Okla.; College of Physicians and Surgeons, Baltimore, 1892; member of the Oklahoma State Medical Association; aged 62; died, July 26, of heart disease.

William Peter Ponder, Forsyth, Ga.; Bellevue Hospital Medical College, New York, 1885; member of the Medical Association of Georgia; aged 77; died, July 26, following a long illness.

Edward Estle Truitt, Maquon, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1883; aged 66; died, August 4, in a hospital at Galesburg, of a poison, presumably self-administered.

Matthew Woodbury Plumstead ⊕ East Haddam, Conn.; Jefferson Medical College of Philadelphia, 1887; on the staff of the Middlesex County Hospital, Middletown; aged 70; died, July 28.

James T. McCormac, Berkeley, Calif; Willamette University Medical Department, Salem, Ore., 1882; formerly a practitioner in Oregon; aged 68; died, July 25, of carcinoma of the stomach.

Joseph Frederick Sigwart ⊕ Sacramento, Calif.; St. Louis University School of Medicine, 1912; aged 38; died, August 2, at St. Joseph's Hospital, San Francisco, of lobar pneumonia.

Theodore M. Gehrett, Deshler, Ohio; Toledo Medical College, 1884; member of the Ohio State Medical Association; aged 69; died, July 30, as result of a recent automobile accident.

Samuel J. Sornberger ⊕ Cortland, N. Y; College of Physicians and Surgeons, Chicago, 1894; on the staff of the Cortland County Hospital; aged 75; died, August 10, of heart disease.

William Rothven Rowland, Blanchester, Ohio; University of Vermont College of Medicine, Burlington, 1903; also a minister; aged 52; died, recently, of cerebral hemorrhage.

Evan J. Jones, Oak Hill, Ohio; Medical College of Ohio, Cincinnati, 1879; member of the Ohio State Medical Association; aged 68; died, August 2, following a long illness.

Lauren Melville Allen ⊕ Norwalk, Conn.; Medical Department of Columbia College, New York, 1880; formerly on the staff of the Norwalk Hospital; aged 68; died, July 28.

William P. Howle, Charleston, Mo.; University of Louisville (Ky.) School of Medicine, 1876; formerly county coroner; aged 78; died, July 26, following a long illness.

Luther Murray Houser, Pennsylvania Furnace, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1886; aged 74; died, July 11, of cerebral hemorrhage.

Jesse Cram Anthony, San Francisco; Bellevue Hospital Medical College, New York, 1886; aged 64; died, August 3, of non-contagious parotiditis and chronic cystitis.

Richard J. Phelan, Minneapolis; University of Minnesota Medical School, Minneapolis, 1903; aged 49; died, July 27, of injuries received in jumping from a window.

Adolph Wieber, Brooklyn; University of Giessen, Germany, 1889; Long Island College Hospital, Brooklyn, 1890; aged 61; died, July 29, of cardiovascular disease.

John Davidson Fields, Austin, Texas; Medical Department University of Louisiana, New Orleans, 1869; Civil War veteran; aged 80; died, June 27.

Frederick M. E. Howell, Reading, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1900; aged 54; died, July 30, of angina pectoris.

Leo J. Kelly, Joliet, Ill.; Illinois Medical College, Chicago, 1906; aged 42; died, July 31, at St. Joseph's Hospital, following an operation.

Patrick O'Neill Convery, Waterloo, Iowa; Rush Medical College, Chicago, 1896; aged 53; died, July 31, at the Mercy Hospital, Dubuque.

Alva Clay Jones ⊕ Leonard, Texas; Atlanta College of Physicians and Surgeons, 1902; aged 55; died, June 28, of chronic nephritis.

Gertrude Gail Wellington, Balsam Lake, Wis.; New York Medical College and Hospital for Women, 1887; aged 71; died, July 3.

Isaac F. Barnes, Gulfport, Miss.; Kentucky School of Medicine, Louisville, 1879; aged 67; died, July 25, of chronic nephritis.

John Jackson Horton, Elora, Tenn.; Vanderbilt University Medical Department, Nashville, 1881; also a minister; died, July 26.

Carrie B. Flower Hastings, Sedalia, Mo.; Kansas City (Mo.) Hospital College of Medicine, 1888; aged 90; died, July 9.

Edward H. Linnell, Norwich, Conn.; New York Homeopathic Medical College, 1876; aged 71; died suddenly, July 26

Samuel Percy Shelton, Cedars, Miss.; Memphis (Tenn.) Hospital Medical College, 1903; aged 50; died, May 31.

Joseph Henry Bittinger ⊕ Hanover, Pa.; Jefferson Medical College, Philadelphia, 1878; aged 73; died, July 4.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

BENZYL-VIBURNUM COMPOUND NOT ACCEPTABLE FOR N. N. R.

Report of the Council on Pharmacy and Chemistry

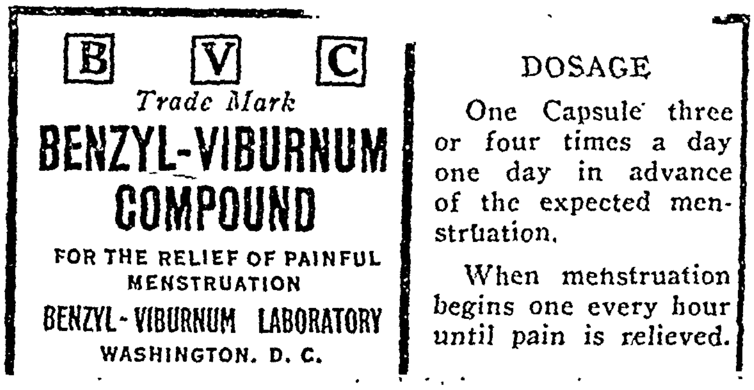
The Council has authorized publication of the following report.

W. A. Puckner, Secretary.

Benzyl-Viburnum Compound (Benzyl-Viburnum Laboratory, Washington, D. C.) is marketed in the form of capsules. According to the information furnished the Council:

> "Each capule contains two grains of Benzyl-Succinate, Viburnum opulus and Helonin (last two in form of powdered extracts) and *powdered ginger root.*"

In the advertising the capsules are stated to contain ". . . benzyl-succinate, viburnum opulus, helonin, and other ingredients . . ." that is, the ginger root is replaced by "other ingredients." Nothing is said in the advertising or in the information furnished the Council in regard to the "helonin," which is said to be present in the form of an extract. The name "helonin" has been applied to extractive preparations derived from false unicorn (*Helonias dioica*) of *indefinite composition.*



B V C
Trade Mark
BENZYL-VIBURNUM
COMPOUND
FOR THE RELIEF OF PAINFUL
MENSTRUATION
BENZYL-VIBURNUM LABORATORY
WASHINGTON. D. C.

DOSAGE
One Capsule three or four times a day one day in advance of the expected menstruation.
When menstruation begins one every hour until pain is relieved.

Photographic reproduction (enlarged) of the label on a trade package. *The advertising matter calls attention to the handy, pocket-size container, thus:* "This form of medication is especially adapted for office workers as Benzyl-Viburnum Compound is packed *in a small glass vial which can be carried in the purse." It is the evident intent of the manufacturers that* Benzyl-Viburnum Compound shall follow in the footsteps of Antikamnia, Aspirin, Pepto-Mangan and other "ethical proprietaries" that passed by easy stages into "patent medicines."

Benzyl-Viburnum Compound is proposed for the treatment of dysmenorrhea and "true asthma." Benzyl esters were reported to be without effect on asthma (The Journal, Dec. 6, 1924, p. 1864). Cramp bark (*Viburnum opulus*) and false unicorn (*Helonias dioica*) have long been constituents of proprietary female remedies, but there is no evidence of their efficiency. In *1916, Pilcher, Delzell and Burman* (The Journal, Aug. 12, 1916, p. 490) *found that both the fluid*-extract and the infusion of cramp bark (and of mountain maple, commonly sold in its stead) and of false unicorn (*Helonias dioica*) were without effect on the excised guinea-pig uterus. They held that the use of these drugs was harmful as well as futile, since they tend to perpetuate therapeutic fallacies. Since then no reports have become available to offset the conclusions of these investigators.

The trade package *contains* the recommendation: "For the relief of painful menstruation," and directions for the use of the preparation.

Benzyl-Viburnum Compound is an indefinite, complex and irrational mixture which is marketed with unwarranted therapeutic claims and in a way to encourage its indiscriminate and harmful use by the public.

JOHN D. RICKER, "MAGNETIC MASSEUR"

Ann Arbor Gives Short Shrift to Traveling Quacks

A two-column advertisement appeared in the Ann Arbor *Times-News* for August 1, which notified "*chronic* sufferers" that "John D. Ricker, Noted Magnetic Masseur," would be *at a local* hotel on August 4 and advised the blind, the deaf and the halt to come and be cured.

The health officer of Ann Arbor, Dr. J. A. Wessinger, believes, however, in protecting the fool from his folly and the sick from the quack *and as a result,* he, with other local officials, was on hand to await *the* arrival of the "magnetic masseur." By 9 a. m., August 4, Ricker had not arrived, but two of his representatives were on hand; Ricker was said to be expected later in the day. He had not appeared in the afternoon, but in the meantime, Ricker's representatives, Charles E. Potter and J. D. Ramey, were both at work interviewing *patients and otherwise* preparing the sheep for the slaughter.

These representatives were described by Dr. Wessinger as having the appearance of tramps temporarily in white collars. They were asked for their credentials entitling them to treat the sick in Michigan. They had none. They were arrested, taken in rapid succession before the public prosecutor, justice court, where they waived examination, and then to the circuit court, where they pleaded guilty to the charge of practicing medicine without a license. *They were fined $100 each and received orders to get over the state line.*

While waiting in the prosecutor's office, one of these men attempted to destroy papers which, when seized, were found to have the names and addresses of the patients and diagnoses (the latter grossly mispelled) of the victims they had already seen. There were ten of these altogether, it seems, and the *quacks had apparently collected fees of from $1 to $15,* the aggregate coming to about *$116.*

Their system, as explained in consultation with the trial judge, was to the effect that the chief quack, Ricker, conducts a so-called Temple of Health, having its headquarters at 205 North Sixth Street, Richmond, Ind. At this location, Ricker is said to treat patients personally and for a fee of $15 *to train* operators, such as those that were apprehended by the officials at Ann Arbor. The latter go out on a salary of $30 a week and expenses. The *money they take in* goes to Ricker.

When dupes come to the agent *they* are given an immediate "treatment" by the means of laying on of hands—and the taking off of cash. The victims' names are then sent to the Temple of Health and they get two treatments daily (of the "absent" or Eddyite type) through the subconscious *mind of Quack Ricker.*

Of course, fakes of this kind would be *practically impossible* of operation were it not for the willingness on the part of certain newspapers to share in the profits of this kind of quackery. Health Officer Wessinger writes that, in addition to the ten victims who had already parted with money to these quacks, there were about twenty-five more who were anxious to be separated from their cash. The health officials have taken up the matter of such fake advertising *with the* local paper, requesting a public disclaimer of any intent to assist in such a fraud. It will be interesting to see whether the *Times-News* publishes such a disclaimer.

Etiology of Tropical Diseases.—Speaking generally, the natives of tropical countries are not injuriously affected by the meteorological conditions of the climates they live in, any more than are the inhabitants of more temperate climates; their physiological activities are attuned by heredity and habit to the conditions they were born into. *The European, it may be,* on his first entering the tropics, and until his machinery has adjusted itself to the altered meteorological circumstances, is liable to slight physiological irregularities, and this more especially if he persist in the dietetic habits appropriate to his native land. . . . It is in their specific causes that the difference between the diseases of temperate climates and those of tropical climates principally lies.—*Manson-Bahr.*

Correspondence

MEDICAL EDUCATION: THE EXPERIENCE OF A TEACHER

To the Editor:—Since Dr. Pusey so forcibly brought the question of revision of medical education to the attention of the Association, the subject has been widely discussed and no solution has been reached. I believe, however, that there is an almost universal consensus that: (1) medical education is too expensive; (2) there are too many physicians in the cities; (3) there are too few physicians in the country; (4) there are too many specialists. There seems to be a fifth corollary: There is too much regulation. There are many, nevertheless, who reject this idea and demand the converse. It is suggested that the situation may be improved, if not remedied, by (1) omitting the two premedical years, and (2) shortening the medical course by a year, thus gaining three years with a probable reduction in cost of a thousand dollars a year. That there are more men who can spend $7,000 gaining a medical education than there are men who can spend $10,000 will not be controverted. That this will increase the number of men graduating is certain, and that some who cannot make a living in the city will be forced to the country seems true.

For thirty years a teacher of gross human anatomy, I have had many opportunities to test the knowledge gained by different methods both by personal observation and by report from many competent observers. My opinion, confirmed by many, is that the present research method does not train as thoroughly as did our older method, and takes far more time. It must be a matter of common observation that a small percentage of our students are capable of the highest types of research work, while almost any one of fair intelligence may be trained to do the routine work of the laboratory, and to write those mediocre papers which are the bane of every science. But a large majority of medical students can make competent physicians if they are given proper instruction, particularly in fundamental branches. I claim that such instruction in gross anatomy was given at the University of Virginia for many years; that that institution turned out many men who were or are leaders in their several communities; that not a few of these men have done research work of a high, though perhaps not the highest type, and that the instruction in that branch did not demand much more than half the time now devoted to the same subject. Other subjects were, of course, as ably and as concisely handled; but my business is with anatomy, leaving the teachers of chemistry, physiology, etc., to state their cases.

Of course, under the method pursued, students were not required to spend so much time in the laboratory and did less actual dissecting; but they saw far better dissections and they were permitted to spend many hours, which did not appear in the schedule, in the study of these dissections. One hour given voluntarily is worth at least two of compulsory attendance. Every student should have free access to the anatomic laboratory at any hour, day or night, that suits his convenience. Students of the University of Virginia were required to do dissecting on two bodies. On the first body, demonstrations from dissections were made of muscles, fascia and viscera and joints. The second was devoted to the study of arteries, veins, lymphatics and the nervous system, with particular attention to relations, a point so underemphasized in the nearly universally used Cunningham's book as to leave a student almost entirely ignorant of this branch of knowledge, vital to both diagnostician and surgeon. A passion for detail has almost destroyed the value of Cunningham's book. Its author was evidently one of nature's teachers; its reviser as evidently one of her pedants. I would not criticize such a work were I not confident that the immense amount of detail seriously diminishes the student's knowledge. Formerly it was a book for students, perhaps too elaborate; now it is that impossible absurdity, "a book for students and investigators." Nothing so hurts the student as an attempt to teach too much. As my old teacher, Towles, expressed it, "you can't put more in the door without throwing something out at the window."

I would urge that the Council permit individuality on the part of the colleges, being certain that all efforts at uniformity must end in mediocrity and that the only legitimate offspring of conformity is hypocrisy.

I would urge the necessity of having medical men to teach medical subjects—men with at least enough experience to be able to distinguish between the important and the relatively unimportant, not mere graduates in medicine who have become teachers and perhaps laboratory experts with no practical experience in medicine or surgery; and I especially urge that teachers be selected because they can teach and because of their capacity for stimulating a desire for knowledge in that particular department in which they labor.

W. G. Christian, M.D., Charlottesville, Va.

STOMATOLOGY IN ENGLAND

To the Editor:—The British Stomatological Association, whose committee on organization has been appointed to draw the details of form of organization suitable for England, at its meeting held, July 27, at the Medical Society of London, endorsed the principles of the Association stomatologique internationale.

The aim of the International Stomatological Association is: (1) to establish stomatology, or the care of the mouth and teeth, as a specialty of medicine throughout the world, to be ultimately practiced by medically qualified dentists, that is, stomatologists; (2) to enlist the cooperation of medically qualified dentists, nonmedically qualified dentists, and medical practitioners to foster the stomatologic idea for the protection of public health; (3) to invite dentists, with no medical qualification but who accept the stomatologic doctrine, to join the stomatologic societies of their respective countries.

The meeting brought forth the idea that, in England, dentistry is proceeding along the path of stomatology and is not taking the direction of dentistry in the United States. In England, dentistry is considered as a branch of medicine, and it is because of economic reasons that not many dentists have the medical qualification. Dental students are encouraged and given actual assistance to obtain the medical qualification, in contrast with the tendency in the United States to keep dental teaching apart from the medical school and autonomous.

Sir W. Arbuthnot Lane, in his address of welcome, pointed out the soundness of the idea that dentists should be trained as medical specialists, not merely mechanics, along similar lines to that of the ophthalmologists, otologists and other medical specialists.

Mr. J. Clifford Wing, chairman of the Public Service Association, showed that there has been an increase in dental service for the large masses of the population as a result of the organized efforts of his organization.

Dr. J. Lewin Payne, dental examiner of the Royal College of Surgeons, explained the progress of dental education in England and its alliance with medicine. He pointed out very emphatically that, "in England, dentistry is recognized as a special branch of surgery and the dental departments constitute a part of the medical faculty."

Mr. Fred Buterfield, secretary of the Incorporated Dental Society and member of the Dental Board of the United Kingdom, stressed the need of the united organization of the dental profession to oppose those measures which may be introduced by the insurance companies and the government, detrimental to public health.

These addresses were followed by a discussion of the international situation concerning stomatology and dentistry and how the educational and professional status of the profession in different countries has an effect on public health problems. The chairman of the evening, Dr. A. Templar Barritt, dental surgeon to the French and National hospitals, invited general discussion.

There are now in England four classes of practitioners, taking the medical qualification as a standard:

Class A. Those with a medical qualification (holding the M.R.C.S., the L.R.C.P., or both, the surgical and medical qualification) and the dental qualification (L.D.S.).

Class B. Those with no medical qualification and only a dental qualification.

Class C. Those having a medical qualification but no dental qualification.

Class D. Those having neither medical nor dental qualifications. These practitioners are the so-called "registered dentists" (R.D.P.). These are dental mechanics who registered either (*a*) under the dentists' act of 1878 or (*b*) under the dentists' act of 1921.

According to the dentists' register of 1925, the number of practitioners of Class A was 646; Class B, 4,801; Class C, figures not definite; Class D*a*, 984; Class D*b*, 7,296. The total number of registered dentists in the United Kingdom for 1925 is 13,727, plus fifty-nine colonial dentists and thirty-two foreign dentists. Of the total number (13,818), about 39 per cent. have a dental qualification and 60 per cent. have no qualification, but are permitted to practice by virtue of the registration acts of 1878 and 1921.

The British Stomatological Association will send a delegation to the meeting of the International Stomatological Association, which will be held in Paris, October 20. The members of the committee are: chairman, A. Templar Barritt; secretary, A. K. Ince Jones; C. Bowdler Henry, F. Montuschi, A. M. Nodine, A. K. Wallace and J. Sim Wallace.

Alfred J. Asgis, New York.

BIRTHS ATTENDED BY MIDWIVES IN MINNESOTA

To the Editor:—A misstatement concerning the number of births reported by midwives in Minnesota occurs in Dr. S. Josephine Baker's recent book on "Child Hygiene," Harper and Brothers, 1925, Chapter V, page 120: "Minnesota reports that over 75 per cent. of its births are cared for by midwives." According to the records of the Division of Vital Statistics of the Minnesota State Board of Health prepared from the original birth certificates, less than 6 per cent. of the births occurring in this state are attended by midwives. During the summer of 1923, a survey of the midwife situation in Minnesota was made by the Division of Child Hygiene. A definite increase in the number of births attended by physicians occurred during 1918-1922, over 85 per cent. of the births having medical attendants in 1922. There is also a proportionate decrease in the number of births attended by midwives or with no attendant. The results of this survey have made us feel that, because of the fact that most of the midwives are older women and are not being replaced by young women, and the fact that the absolute and relative amount of work they are doing is decreasing, our midwife problem in Minnesota is practically negligible.

In a recent study made by Dr. F. L. Adair and Dr. C. O. Maland of Minneapolis of the births occurring in Minneapolis and St. Paul from 1913 to 1923, it was found that 65 per cent. of the deliveries in these two cities occur in hospitals.

A. J. Chesley, M.D., St. Paul.
Executive Officer, Minnesota
State Board of Health.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SUPSALVS — MERSALV

To the Editor:—Please give me any information as to (1) "supsalvs" suppositories, put out by the Anglo French Drug Company, 1270 Broadway, New York; (2) also "Mersalv," supposed to contain 10 per cent. of metallic mercury. These are recommended especially for patients that may not be able to take neo-arsphenamin, and in some ways it does look as though such compounds would be absorbed by rectum. Withhold my name, if you don't mind.

M.D., Mississippi.

Answer.—1. In 1920, the Council on Pharmacy and Chemistry reported unfavorably on Supsalvs (The Journal, Oct. 30, 1920, p. 1219). The report of the Council brought out that the claimed efficacy of the preparation as a means of securing the effects of arsphenamin lacked substantiating proof. At the request of the Council, Littman and Hutton, of the Department of Dermatology and Syphilology of Western Reserve University and the Cleveland City Hospital, investigated the effectiveness of arsphenamin administered by rectum. They published a critical report of the literature and the results of clinical trials (The Journal, March 15, 1924, p. 868). From their studies, the authors conclude that the clinical results obtained from the rectal administration of arsphenamin were too feeble, as compared with treatment by the intravenous or intramuscular methods, to warrant favorable consideration of this treatment in congenital syphilis.

2. Mersalv is claimed to be a "mercurial cream for inunction." The identity of the ingredients which form the base of Mersalv is not declared by the manufacturer. There is no good evidence to show that Mersalv—or any other proprietary mercurial preparation—is therapeutically superior to the official ointment of mercury.

STERILITY OF PERSONS OF MIXED BLOOD

To the Editor:—In *State* v. *Jackson,* 80 Mo. 175, decided in 1883, appears the following statement: "It is stated as a well authenticated fact that if the issue of a black man and a white woman and of a white man and a black woman intermarry, they cannot possibly have any progeny and such a fact sufficiently justifies those laws which forbid the intermarriage of blacks and whites, leaving out of view other sufficient grounds for such enactments." Is the alleged fact stated by the court true?

————, Washington, D. C.

Answer.—The evidence on which the court based this statement is not available. No facts are known that support such an assertion. Persons of mixed blood do marry and do have children. No recorded observations have been found to show that that fact is in any way modified by the circumstance that the Caucasian strain is derived by the husband from his male or his female parent and is derived by the wife from her parent of the sex opposite that from which her husband derived it. There is no biologic reason for believing that that circumstance would in any way modify the fertility of the union.

DERMATITIS HERPETIFORMIS

To the Editor:—Please give me, through Queries and Minor Notes, current opinion as to the etiology, prognosis and treatment of dermatitis herpetiformis.

A. S. Bosworth, M.D., Elkins, W. Va.

Answer.—The etiology of dermatitis herpetiformis remains unknown. It occurs in all classes of people and from infancy to old age. It is neither contagious nor incurable. It is thought by some to be due to a toxin, either endogenous or exogenous, acting on the nervous and on the vasomotor systems. The eosinophilia both in the blood and in the vesicle content suggests that the disorder is of hematogenous origin.

The prognosis is uncertain, as the disorder is characterized by exacerbations and remissions, either of which may be of weeks' or months' duration. There is usually no disturbance of the general health of the patient aside from the nervousness occasioned by loss of sleep due to the pruritus. The disorder may continue throughout life, but not infrequently the attacks become less and less severe and the remissions longer and longer until the malady disappears.

Arsenic is the drug most recommended at present. Beginning with 3 drops of solution of potassium arsenite three times daily, the dose is increased by 1 drop every fourth day until 10 or 12 drops are taken. Usually by the time the limit of tolerance is reached the itching ceases and the eruption begins to undergo involution. The use of autogenous serum has also been advised. This consists in withdrawing 120 c.c. of blood, which is allowed to clot at room temperature. The serum is decanted, centrifugalized and injected intravenously three or four hours after the withdrawal. As a rule, from 30 to 40 c.c. of serum can be recovered. From five to ten such treatments are given at five day intervals.

The subcutaneous injection of peptone solution has been reported to have given excellent results in a few cases.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Alaska: Juneau, Sept. 1. Sec., Dr. Harry C. De Vighne, Juneau.

Colorado: Denver, Oct. 6. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

Idaho: Boise, Oct. 6. Commissioner of Law Enforcement, Mr. F. A. Jeter, Boise.

Illinois: Chicago, Oct. 6-8. Director, Mr. A. M. Shelton, Capitol Bldg., Springfield.

Minnesota: Minneapolis, Oct. 6-8. Sec., Dr. Thomas S. McDavitt, Lowry Bldg., St. Paul.

Montana: Helena, Oct. 6. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

National Board of Medical Examiners: Part III, Baltimore, Oct. 15. All applications for this examination must be made on or before Oct. 1. Sec., Dr. J. S. Rodman, 1600 Walnut St., Philadelphia.

New Hampshire: Concord, Sept. 10-11. Sec., Dr. Charles Duncan, Concord.

New York: Albany, Buffalo, New York City and Syracuse, Sept. 21-24. Chief, Education Dept., Mr. Herbert J. Hamilton, Albany.

Oklahoma: Oklahoma City, Sept. 8-9. Sec., Dr. James M. Byrum, Shawnee.

Porto Rico: San Juan, Sept. 1. Sec., Dr. Diego A. Biascoschea, 3 Allen St., San Juan.

Rhode Island: Providence, Oct. 1. Sec., Dr. Byron U. Richards, State House, Providence.

Utah: Salt Lake City, Oct. 6. Director of Regis., Mr. J. T. Hammond, 412 State Capitol Bldg., Salt Lake City.

Wyoming: Cheyenne, Oct. 5-7. Sec., Dr. G. M. Anderson, State Capitol, Cheyenne.

Georgia June Examination

Dr. C. T. Nolan, secretary, Georgia Board of Medical Examiners, reports the written examination held at Atlanta and Augusta, June 2-3, 1925. The examination covered 10 subjects and included 100 questions. An average of 80 per cent. was required to pass. Eighty-four candidates were examined, all of whom passed. Twelve candidates were licensed by reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Emory University	(1924) (1925, 55)	92 88, 88, 89, 89, 90, 90, 90, 90, 90, 90, 91, 91, 91, 91, 91, 91, 91, 91, 91, 91, 91, 91, 92, 92, 92, 92, 92, 92, 92, 92, 92, 92, 92, 92, 93, 93, 93, 93, 93, 93, 93, 93, 93, 93, 94, 94, 94, 94, 94, 94, 94, 95, 95, 95, 95
University of Georgia	(1925, 25)	86, 88, 89, 89, 89, 90, 90, 90, 90, 90, 90, 90, 91, 91, 91, 91, 91, 92, 92, 92, 92, 92, 93, 94, 94
Columbia University Coll. of Physicians and Surgeons	(1923)	91
Medical College of Virginia	(1921)	93
University of St. Thomas Medical Dept., Manila	(1910)	83

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Georgetown University	(1915)	Nebraska
Tulane University	(1920), (1923)	Louisiana
Johns Hopkins University	(1921)	Maryland
Mississippi Medical College	(1909)	Florida
Medical College of the State of South Carolina	(1923)	S. Carolina
Meharry Med. Coll.	(1912) South Carolina, (1923), (1924)	Tennessee
University of Tennessee	(1923), (1924, 2)	Tennessee

Book Notices

The Inheritance of Mental Diseases. By Abraham Myerson, Professor of Neurology, Tufts College Medical School. Cloth. Price, $5. Pp. 336, with illustrations. Baltimore: Williams & Wilkins Company, 1925.

Heredity in Nervous and Mental Disease. A Series of Investigations and Reports by the Association for Research in Nervous & Mental Disease. Volume III [1923]. Cloth. Price, $3.75. Pp. 332, with 48 illustrations. New York: Paul B. Hoeber, Inc., 1925.

Dr. Myerson's book is divided into two parts. The first seven chapters constitute a summary of our present knowledge of mental diseases, presented in a simple manner, such as will appeal particularly to the general practitioner, and inclining largely to minimizing the importance of heredity in the onset of mental diseases. The second part of the volume concerns an analysis of 130 families studied at the Taunton State Hospital, with particular relation to the inheritance of mental defect. Myerson is convinced as a result of his study that it is rare, indeed, that a mental disease persists unaltered for more than two generations, and that it is the tendency of psychiatric families to die out. Furthermore, the tendency of various forms of insanity seems to be to turn gradually toward dementia praecox in their descent. The intricacies of the questions raised by his detailed study cause Myerson to conclude that much more information is needed before we can make any generalization on this problem. He says:

> We have a right, I think, to pass laws that no one shall conceal the fact of mental disease when entering upon marriage and that the concealment of such disease shall be a cause for annulment, whether or not the individual was insane at the time of marriage. We have a right to ask for the sterilization of those types of feeblemindedness which we know to run in families. Wherever mental disease exists in a family group for more than one generation, it would be wise for society to sterilize those of the second generation who go to institutions. I do not believe that we can ask much more than that in the present state of our knowledge, and we cannot afford to be unduly dogmatic. The common sense and stolidity of legislatures, what seems to be stupidity, is often enough justified by the dogmatic attitudes of science, a dogmatism hard to understand by one who knows the history of the theories of science.

At the same time as Dr. Myerson's volume becomes available, the Association for Research in Nervous and Mental Diseases presents the transactions of its session in 1923, which was devoted wholly to the question of heredity in nervous and mental diseases. The volume includes essays by many investigators in this problem, together with the discussions of those who attended the session. In the first chapter the present-day situation is outlined, including the character of the problem, the cellular basis of inheritance and the significance of various exogenous and endogenous factors. In the second chapter, Dr. Smith Ely Jelliffe discusses the parts of the central nervous system that tend to exhibit morbid recessive or dominant characters. The third chapter takes up the pathologic changes demonstrated in the bodies of those suffering from the effects of heredity and familial diseases of the nervous system, naturally leading to the view that it is the anatomic condition that is inherited, rather than the mental change. Other sections deal with heredity in the psychoses, and a final essay by Joseph Collins considers heredity as it appears in fictional literature.

A Practice of Gynaecology. By Henry Jellett, M.D., F.R.C.P.I., Consulting Obstetrician to the Department of Public Health of New Zealand. Fifth edition. Cloth. Price, $8.50. Pp. 744, with 432 illustrations. Philadelphia: Lea & Febiger, 1925.

This book is a comprehensive work on practical gynecology, printed in large type, on good paper, and profusely illustrated, including fifteen colored plates. This edition shows careful revision, and numerous additions have been made. The chapter on menstruation is adapted chiefly from Novak's monograph, and due credit is given to this author for his contribution. Endocrine therapy is discussed at length, and a conservative attitude adopted. Under this heading, Clark is quoted as saying: "Endocrine therapy is coming to bear suspicious resemblance to medieval magic," which is indeed expressive of the status of this form of treatment. The chapter on sterility is exceptionally concise and represents an epitome of the latest advance in this field.

Considerable space is given to the Rubin patency test, although credit is given to Rubin and Peterson alike for the development of the test for patency of the fallopian tubes, and the induction of pneumoperitoneum for radiography of the pelvic organs. The indications and contraindications for tubal patency are stated, and Peterson's posture for pelvic radiography after pneumoperitoneum is illustrated. A whole chapter is devoted to vaccine therapy in gynecology, giving it far greater importance than most American authors attribute to it. A splendid tribute to Sampson's work on implantation adenomas of the pelvis is offered by Jellett, and a color plate taken from Sampson is reproduced; the subject is thoroughly discussed. As a whole, the work is a splendid textbook and a credit to the author.

Modern Marriage. A Handbook. By Paul Popenoe. Cloth. Price, $2.50. Pp. 259. New York: The Macmillan Company, 1925.

Books on marriage seem somehow to be rather unnecessary contributions to the literature of advice. People read them and then apparently marry without any reference to what they have read. The large majority of marriages take place without any intelligent selection on the part of either party. Popenoe believes, among other things, that the desire for children is the motive that influences many men in their marriages, and yet one wonders whether he has confused the sexual urge with the desire for children. He says that a census of men who were asked whether they would prefer health, wealth or beauty in marriage brought votes of seventy-nine for health, seventy-six for beauty and twenty-six for wealth, and yet physicians are inclined to believe that health is usually the last consideration in men's choice of women that they marry. The reason, of course, is that it is impossible without a complete physical examination to know the condition of the genital tract and the organs involved in childbirth. He urges rightly early marriage and early childbirth from psychologic and physiologic points of view. In general the advice is sound; it is put plainly, but without the slightest vulgarity, and the book may be recommended by any physician to those who require a volume of this kind. There is added to the book, unfortunately, an introspective account by M. W. of her personal sensations during childbirth. Such an item has no place in the book, and to some extent discounts its value as a volume for the prospective bride.

The Challenge of Childhood. Studies in Personality and Behavior. By Ira S. Wile, M.S., M.D., Assistant Pediatrician and Director of the Health Class, Mount Sinai Hospital. Cloth. Price, $3.50. Pp. 305. New York: Thomas Seltzer, 1925.

In this volume, following a general introduction, Dr. Wile presents the histories of fifty children studied from the physical, the intellectual, the emotional and the social sides with a view to setting forth concretely typical instances involving problems of child care, such as may occur in any home or in any community. The work is essentially, therefore, a contribution to social medicine and an attempt to serve the coming generation in meeting the problems of disease, vice, crime, invalidism, poverty, perversion of function and delinquency at their sources or during their development, and not after the child has become a charge on the community. Dr. Wile, in discussing individual instances, gives facts of importance regarding many similar cases, and calls attention to the scope of the various problems. It is his hope, by studies of the *individual child*, to establish an understanding that will permit it to fulfil its destiny without falling inadequately beneath the demands of society.

Serum Diagnosis of Syphilis by Precipitation: Governing Principles, Procedure and Clinical Application of the Kahn Precipitation Test. By R. L. Kahn, M.S., D.Sc., Immunologist, Bureau of Laboratories, Michigan Department of Health. Cloth. Price, $3. Pp. 237. Baltimore: Williams and Wilkins Company, 1925.

This book discusses in detail the principle of the author's precipitation test for syphilis. The work falls into six parts: introductory, the principles of precipitation and their application to the author's test, special studies, procedure, clinical application, and general considerations, and will be of great interest and value to all who are concerned in the serum diagnosis of syphilis.

An X-Ray Atlas of the Normal and Abnormal Structures of the Body. By Archibald McKendrick, F.R.C.S., D.P.H., F.R.S.E., Surgeon-inCharge of the Surgical X-Ray Department, Royal Infirmary, Edinburgh, and Charles R. Whittaker, F.R.C.S., F.R.S.E., Assistant Lecturer on Anatomy, Surgeons' Hall, Edinburgh. Cloth. Price, $10. Pp. 222, with 388 illustrations. New York: William Wood & Company, 1925.

In this volume, sixty roentgenograms picture the normal joints and the different appearances presented by the alteration of the focus point. The authors have selected excellent plates from various collections, and these are reproduced on a high quality of enameled paper. They will serve to provide many a tyro with opportunity for acquiring exeprience through the study of typical plates.

Miscellany

AN UNPUBLISHED BEAUMONT LETTER

J. E. LANE, M.D.
New Haven, Conn.

This letter of William Beaumont was written to his cousin Andrew Beaumont, at that time a member of Congress from Pennsylvania. Andrew Beaumont's reply to this letter is evidently the letter found on page 240 of Myer's Life and Letters of Dr. William Beaumont. This letter was presented to the Beaumont Medical Club by André A. Beaumont of Wilkes-Barre, Pa., the grandson of Andrew Beaumont. The letter is deposited in the Yale University Library. It seems to me to be of sufficient interest to publish.

Jefferson Barracks, Mo.
21st October, 1834.

Yours, My Dear Cousin, of June 24th, was rec'd here, via Plattsburgh, in August. The perturbation of my feelings occasioned by your *hyperbolical* communication, had ceased long before it reached me. You may make the same allowance for the expressions in my reply, as you ask of me for that communication. I think they were both written in about the same strains of excentricity. No unpleasant impressions remain on my mind, and I hope, & *trust,* none remains on yours, or any other of my *Congressional friends,* Surely there ought not.

I rec'd the *"Old man of the River's"* paper too, & I think he might as well have written a little more on the margin when he was about it; but I suppose he was in a great hurry, as usual.

I am happy indeed, & highly gratified to perceive that you are a fair candidate to fill again, that seat you so faithfully and creditably occupied in Congress last session. I wish you *intire* and *infallible* success, & triumph over your political opponents, & personal enemies. I am no politician, nor meddle I much with politics. Physic is my forte: but if I infer rightly from the Public journals of the day, *Democracy is rising in its majesty,* the Administration party, becoming more & more triumphant, and the Heroic old General & "the Constitution must and will be sustained."

I have concluded to renew my Memorial to Congress for an appropriation &c., at the ensuing session. I have consulted our friend Dr. Linn. He advises me to do it, & has very kindly offered to take an active part in bringing it forward, & seems to feel a lively interest in my success. I have submitted to him the Documents, & the management of them, in concert with such other of my good friends as may feel an interest & are willing to second his efforts; amongst whom, I rank you the highest.

Will you take an early opportunity to consult with him on the subject & devise the most eligible plan of proceeding?

Have it brought up early in the session as possible. Dr. Linn has a Memorial in his possession, purporting the facts & particulars of the case. Another, corresponding with the Amendment offered by Mr. E. Everett in the House last winter, was left with the com$^{tte.}$ of Finance in the Senate, of which Mr. Webster was chairman, at the close of last session, & *not* acted upon, as I have been able to learn. This, with its accompanying papers, may be obtained, I suppose, if necessary.

I shall leave it discretionary with you & Dr. Linn, which to bring forward, with such modifications as you may think most advisable. I shall rely much on you & Dr. L. for success. I know your zeal & ability, and doubt not your willingness to do all you can for me.

I may be there this winter again: but it is yet doubtful. I hope to get away from here next Mo. to go for my family, now at Plattsburgh N. Y. If I do, I intend to take Washington in my route.

Let me hear from you when convenient or necessary, & address your letters to Plattsburgh N. Y. till otherwise advised. I hope you will promptly & freely advise me of any & everything further to be done on my part, & use all proper means to incline the minds of members to my advantage. Urge the great expense I have already incurred, & what am incurring. If *5,000$ cant be obtain'd,* get less, 1825$ will not $1/3^d$ remunerate my expenses, but if you cant get more take that. "Go a head".—

Tell me whether or not, in your opinion, it will be advisable for me to write to such members as I may be acquainted with, on the subject of my Memorial about the time of the commencement of the session, so as to jog their memories & excite their favorable interest to the subject. Would it conduce any to the promotion of the object in view? Will not your personal remarks & influence be preferable & far more effectual? Just state to me, frankly, your views & opinion on the subject.

I frequently hear, indirectly, from your friend, Dr. Wright, of the Army. He is now at Fort Gibson, and in health, I believe, though he has been sick during the summer. I saw [his] brother, the Pay Master, a few days ago. He [felt] sure the Doctor would try to get to Fort Crawford in the spring. I hope he may, for I have selected that as my station, whenever I again go to permanent duty. I have not given up the Experiments, nor my tour to Europe, yet, though my *rascally Frenchman* has again absconded to Canada, & will put me to the trouble & expense of getting him back, when I go north.

My kind & cordial respects to your family, & to Miss Elizabeth Wirt. When you go to the metropolis, impress them *firmly* & *sweetly* upon those beauty-blushing cheeks, if she will permit you. No offence to *our dear wives,* however, I hope,

Truly & Respectfully,
Yr Cousin & friend
Wm. Beaumont

NEW METHOD FOR TESTING HEMATIMETERS

The Bureau of Standards of the Department of Commerce has devised a new apparatus for testing the accuracy of hematimeters by means of the interference of light waves. The new instrument consists, briefly, of two interferometer plates, a so-called anvil and an optical arrangement for observing the interference fringes. Each fringe observed through the eye piece between two reference marks denotes a displacement of 0.5 micron (0.0005 mm.) of the contact point of the instrument from its zero position; when four fringes are observed, the error in the depth of the counting chamber is about 2 microns (0.002 mm.), and that is the limit of tolerance. Such a hematimeter would be discarded. Not only the depth of the counting chamber can thus be tested for accuracy, but the planeness of the central and supporting surfaces and the planeness of the cover glass as well. The interferometer method of testing is sufficiently sensitive to note an irregularity of 0.3 micron in the surface of the ruled square, and a chamber can be tested in one or two minutes. For years the Bureau of Standards has been testing and certifying hematimeters by means of an apparatus having a scale and a micrometer microscope. This method was laborious, requiring about ten minutes to test each chamber, and the unavoidable error in some cases was as large as 1 micron. The average error with the interferometer in testing high quality chambers is only about one fifth as large as with the micrometer apparatus. Blood counting is one of the most useful of all the tests that are performed with instruments. At any one of the various steps, however, it is open to inaccuracies which depend partly on the skill of the operator and partly on the quality of the hematimeter. The new method of testing of the Bureau of Standards will lead to a better quality of blood counting apparatus and, it naturally follows, to improvements in clinical observation.

Medicolegal

Reliance on Roentgenograms to Show Fracture—Roentgenologist—Opinions of Physicians

(Pearson v. Crabtree et al. (Calif.), 232 Pac. R. 715)

The District Court of Appeal of California, Second District, Division 1, in reversing a judgment which the plaintiff obtained against a physician and against a roentgenologist, says that the plaintiff was injured in a street car accident and taken to an emergency hospital where the defendant physician after examining him informed him that it was probable that there might be an impacted fracture of the left hip, but that he could not be positive about it without a roentgenogram, and suggested his being taken to another hospital and having a roentgenogram taken of his injured limb. At the latter hospital the defendant roentgenologist took two roentgenograms of the hip and the next day advised the physician that they disclosed no evidence of bone injury; and the physician, without any further or other examination of the plaintiff, told him that he might go home; that the only treatment necessary for his injury was to put hot water applications on the hip in order to relieve the pain from the sprain which he had received. About ten days later the plaintiff was taken to the physician's office, told him that he was suffering intense pain, and asked him to make a further examination of the limb, but the physician said that he was only suffering from a sprain, had received no bone injury, and would probably be around in a couple of weeks. At about this time the street car company made a settlement with the plaintiff. Three weeks later the plaintiff had additional roentgenograms taken, which showed that he had sustained an impacted fracture of the hip, which had already healed in an unnatural position. The testimony of the physicians and roentgenologists called as witnesses was to the effect that an impacted fracture would not on all occasions show on roentgenograms taken within a short time after the injury, and that this was a matter of common knowledge not only among roentgenologists but also among physicians and surgeons, for which reason the common and accepted practice among physicians and surgeons was not to rely entirely on roentgenograms in diagnosing injuries such as that sustained by the plaintiff, but, in addition to the use of the roentgen ray, to make a most thorough physical examination of the injury. In the opinion of the court there was sufficient evidence to warrant the jury in rendering a verdict against the physician.

The plaintiff contended that the defendant roentgenologist was negligent in failing to take roentgenograms of the right hip in connection with those taken of the left hip, in order that by comparing the roentgenograms of the left hip with those of the right the fracture might have been discovered. But there was nothing in the testimony in the case to show that it was necessary to take roentgenograms of both of the plaintiff's hips. Nor was there anything in the testimony to show that it was customary among roentgenologists, in cases like that of the plaintiff, to take roentgenograms of both hips. The defendant roentgenologist, in the treatment of the plaintiff's injury by the use of the roentgen ray, was only required to use such reasonable care, skill and diligence as were usually or customarily exercised by others in the same line of practice and work in similar localities, or in the same section of the country. There was no showing that he did not meet the requirements of this rule, and without such proof the evidence failed to show negligence on his part, and it was therefore insufficient to support the verdict against him.

The questions involved in the charges—that the roentgenologist was negligent in failing to take roentgenograms of both hips and that the physician was negligent in relying wholly on the roentgenograms taken and in not supplementing the knowledge acquired by means of them by a careful and thorough physical examination of the hip, could be solved only by a resort to the knowledge of those learned in the practice of medicine and surgery and in the use and purpose of roentgenograms. Consequently it was error to instruct the jury that the opinions of the physicians were merely advisory, and that the jury was not bound to accept them, but might disregard them altogether, if from all the facts and circumstances in the case it believed them unreasonable.

Hearing denied by the Supreme Court of California.

Hospital Not Liable for Injury to Patient from Fall

'D'Amato et ux. v. Orange Memorial Hospital (N. J.), 127 Atl. R. 340)

The Court of Errors and Appeals of New Jersey, in affirmng a judgment entered on a directed verdict for the defendant, says that one day while Mrs. D'Amato was a pay [illegible]tient in the defendant hospital and was in a wheel chair, he nurse in charge attempted to remove her from the chair nd place her in bed, but while the transfer from chair to bed was going on the patient fell out of the chair, broke her eft kneecap, and sustained other injuries. Mr. and Mrs. D'Amato brought this action to recover damages for the njuries sustained by the wife, with the usual consequential damages to the husband. The trial judge, in deciding the notion to direct a verdict for the defendant, took occasion to observe that there is a difference in the decisions in the various states regarding the responsibility of charitable hospitals for the negligence of their physicians and nurses, some holding liability, others immunity; and he adopted the rule which to him was the more convincing—that of nonliability, and in thus deciding this court thinks he was right. In this court's opinion, public policy requires that a charitable institution maintaining a hospital be held not liable for injuries resulting to patients through the negligence or carelessness of its physicians and nurses, even if the injured person were a pay patient; payment for board, medical services, and nursing in such case going to the general fund to maintain the charity. However, the court is not required in this decision to go so far as to hold that a charitable corporation maintaining a hospital might not be liable to a patient, if carelessness were shown in the selection of the agent responsible for the injury, as that question was not raised in this case. The defendant, having been organized under an act providing for the incorporation of charitable institutions, was presumed to be a charitable institution unless the contrary appeared, and in this case there was no such showing.

Death After Operation Not Caused by Accidental Means

(Cladwell v. Travelers' Ins. Co. (Mo.), 267 S. W. R. 907)

The Supreme Court of Missouri, in reversing a judgment obtained by the plaintiff as beneficiary on two policies of accident insurance where the insured was operated on for abdominal and umbilical hernias and died five days later from an intestinal obstruction, says that, under the terms of the policy, the plaintiff must offer substantial evidence tending to show that her husband's death resulted "from accidental injuries, . . . through . . . accidental means," and that the sole question was what is meant by "accidental means." It cannot be doubted that what the surgeon did in performing the operation at the request and under the employment of the insured was the act of the insured, just as much as if the insured had performed the operation with his own hands. This was true under the rule that what one does through another he does himself.

There are two clearly defined lines of cases on this question. One holds that, where an unusual or unexpected result occurs by reason of the doing by the insured of an intentional act, where no mischance, slip or mishap occurs in doing the act itself, the ensuing injury or death is not caused through accidental means; that it must appear that the means used was accidental, and it is not enough that the result may be unusual, unexpected or unforeseen. The other line of cases holds that, where injury or death is the unusual, unexpected or unforeseen result of an intentional act, such injury or death is by accidental means, even though there is no proof of mishap, mischance, slip or anything out of the ordinary in the act or event that caused such injury or death. The Missouri cases that have discussed the question have followed the second line of cases that, when the injury is the unexpected result of an intentional act, such injury should be considered as occurring through accidental means. But this court now concludes that the rule in Missouri, so far as the law has been declared by the courts of appeals, is out of harmony with the best-considered cases elsewhere, and is not in accord with sound reasoning.

In the sense that the word "means" was used in the policies in this case it was equivalent to cause. The defendant insured only against death or injury suffered through accidental means or cause. Assuming that the insured's death was caused by the operation voluntarily undertaken and admittedly performed in a skilful manner, the plaintiff must show that something unforeseen, unusual or unexpected and unintended occurred during the progress of the operation, and that this something cause the insured's death. The plaintiff offered only proof tending to show that an unforeseen, unusual and unexpected result followed the performance of an apparently necessary surgical operation undertaken at the request of the insured and skilfully performed. She was therefore not entitled to recover on the policies. The decisions of the courts of appeals holding contrary views should be overruled.

Again, the defendant contended that its demurrer to the evidence should have been sustained because the conclusion as a fact that the insured died as a result of the operation for the hernias could be reached only by mounting inference on inference; that is to say, it must first be inferred that the obstruction of the bowel, conceded to have been the immediate cause of death, was brought about by a thrombus in the mesenteric artery, and then it must be further inferred that the thrombus was caused by the operation. But, in the view taken by the supreme court, it was unnecessary to pass on this contention.

Society Proceedings

COMING MEETINGS

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Hot Springs, Va., Sept. 16-18. Dr. James E. Davis, 111 Josephine Avenue, Detroit, Secretary.

American Electrotherapeutic Association, Chicago, Sept. 15-17. Dr. Richard Kovacs, 223 East 68th Street, New York, Secretary.

American Roentgen Ray Society, Washington, D. C., Sept. 22-25. Dr. Charles L. Martin, Baylor Hospital, Dallas, Texas, Secretary.

Association of Military Surgeons of the United States, New York, Oct. 8-10. Col. J. R. Kean, U. S. Army, Ret., Army Medical Museum, Washington, D. C., Secretary.

Colorado State Medical Society, Colorado Springs, Sept. 29-Oct. 1. Dr. F. B. Stephenson, Metropolitan Building, Denver, Secretary.

Delaware State Medical Society, Wilmington, Oct. 13-14. Dr. W. O. La Motte, Industrial Trust Building, Wilmington, Secretary.

Idaho State Medical Association, Pocatello, Sept. 3-5. Dr. J. N. Davis, Kimberly, Secretary.

Indiana State Medical Association, Marion, Sept. 23-25. Mr. T. A. Hendricks, Hume Mansur Building, Indianapolis, Executive Secretary.

Kansas City Clinical Society, Kansas City, Mo., Oct. 5-9. Dr. James R. McVay, Rialto Building, Kansas City, Mo., Secretary.

Kentucky State Medical Association, Owensboro, Oct. 5-9. Dr. A. T. McCormack, 532 West Main Street, Louisville, Secretary.

Michigan State Medical Society, Muskegon, Sept. 8-10. Dr. F. C. Warnshuis, Powers Theatre Building, Grand Rapids, Secretary.

Mississippi Valley Conference on Tuberculosis, Lansing, Mich., Sept. 15-17. Dr. T. J. Werle, 209 W. Shiawassee Street, Lansing, Mich., Executive Secretary.

Missouri Valley, Medical Society of the, St. Joseph, Sept. 30-Oct. 2. Dr. Charles Wood Fassett, 115 East 31st Street, Kansas City, Mo., Secretary.

National Medical Association, Chicago, Aug. 25-28. Dr. Clyde Donnell, 121 Parrish Street, Durham, N. C., Secretary.

Nevada State Medical Association, Elko, Sept. 4-6. Dr. C. E. Piersall, 17 N. Virginia Street, Reno, Secretary.

Oregon State Medical Society, Medford, Sept. 2-4. Dr. C. L. Booth, 1021 Selling Bldg., Portland, Secretary.

Pennsylvania, Medical Society of the State of, Harrisburg, Oct. 5-8. Dr. Walter F. Donaldson, Jenkins Arcade, Pittsburgh, Secretary.

Utah State Medical Association, Salt Lake City, Sept. 7-12. Dr. William L. Rich, Boston Building, Salt Lake City, Secretary.

Vermont State Medical Society, St. Johnsbury, Oct. 15-16. Dr. William G. Ricker, 29 Main Street, St. Johnsbury, Secretary.

Virginia, Medical Society of, Richmond, Oct. 13-16. Miss Agnes V. Edwards, 104½ West Grace Street, Richmond, Secretary.

Washington State Medical Association, Seattle, Sept. 17-18. Dr. C. H. Thomson, Cobb Building, Seattle, Secretary.

Wisconsin, State Medical Society of, Milwaukee, Sept. 16-18. Mr. J. G. Crownhart, 558 Jefferson Street, Milwaukee, Executive Secretary.

Current Medical Literature

American Journal of Pathology, Boston

1: 341-443 (July) 1925

Studies on Endothelial Reactions. IX. Formation of Reticulum in Lesions of Experimental Tuberculosis in Rabbits. N. C. Foot, Cincinnati.—p. 341.
*State of Cardiac Muscle in Hyperthrophy and Atrophy. H. T. Karsner, O. Saphir and T. W. Todd, Cleveland.—p. 351.
*Histologic Alterations of Pancreas in Chronic Passive Congestion. W. C. Von Glahn and R. Chobot, New York.—p. 373.
*Cholesterosis of Gallbladder. S. H. Mentzer, Rochester, Minn.—p. 383.
Arachnid Infection in Monkeys (Pneumonyssus Foxi of Weidman). F. C. Helwig, Lawrence, Kan.—p. 389.
Mucocele of Appendix with Globoid Body Formation. G. Milliken and C. A. Poindexter, Galveston, Texas.—p. 397.
Effect of Certain Metabolic Changes on Aorta of Rabbits and Guinea-Pigs. O. Saphir, Cleveland.—p. 403.
Studies on Pneumonia Following Nasopharyngeal Injections of Oil. G. F. Laughlen, Toronto.—p. 407.
Pathology of Diabetes; Pancreatic Regeneration. S. Warren and H. F. Root, Boston.—p. 415.
Occurrence of Reticulum in Tumors. N. C. Foot and H. A. Day, Cincinnati.—p. 431.

Cardiac Muscle in Hypertrophy and Atrophy.—Karsner, Saphir and Todd assert that the enlargement of the heart in hypertrophy is due principally to a hypertrophy of the muscle fibers without an increase in the number of fibers. There is no hyperplasia of the fibers. The process is one of pure hypertrophy. The change is accompanied by a distinct tendency toward uniformity in breadth of the fibers. The reduction in size of the heart in atrophy is due to a reduction in size of the muscle elements, with a decrease in the number of fibers of the whole heart. The fibers are more uniform in breadth than in the normal heart. The approach to uniformity in breadth of the fibers of the hypertrophic and atrophic heart, as compared with the normal, gives a new conception of variability as affecting the cardiac muscle in its adaptation to abnormal conditions.

Histology of Pancreas in Passive Congestion.—A comparative histologic study of the pancreas has been made by von Glahn and Chobot in 100 cases of cardiac decompensation and an equal number of cases in which there was no clinical or pathologic evidence of chronic venous stasis. In a large percentage of the cases of chronic passive congestion certain lesions are to be found in the pancreas which are not present in the control series. The distinctive features of chronic passive congestion of the pancreas are: (1) areas of capillary congestion at the periphery of the primary lobules, (2) atrophy of the parenchymal cells in the congested areas, (3) condensation of the connective tissue framework following or accompanying the atrophy of the cells, (4) disappearance of the prezymogen granules in the congested portions. The intensity of these changes in the pancreas follows closely that in the liver in chronic passive congestion, and is directly related to the duration of the final period of cardiac decompensation. There is no evidence to support the belief that chronic interstitial pancreatitis follows chronic passive congestion of the pancreas.

Cholesterosis of Gallbladder.—The wall of the gallbladder has the power to absorb lipoid substances and this absorption is effected probably by a direct passage of the lipoid through the epithelial cells of the gallbladder mucosa. Mentzer studied the gallbladder in a series of 633 necropsies. A total of 46.4 per cent. of persons over 20 had some gross evidence of accumulated lipoid in the wall of the gallbladder. To facilitate the study of lipoid changes in the body, and especially that of cholesterol metabolism, and to obviate the rather unscientific terms of "strawberry" and "fishscale" gallbladders, a term descriptive of these changes has been sought. Inasmuch as it has been proved that the lipoid disturbance seen in the strawberry gallbladder, and the similar conditions, fishscale and papillomatous gallbladders, is essentially a cholesterol one, and inasmuch as the cholesterol content of the brain, suprarenal, liver and blood vessels, at least, undergoes quantitative changes, Mentzer suggests the term cholesterosis.

American Journal of Public Health, Albany, N. Y.

25: 583-672 (July) 1925

Camp Sanitation. C. F. Kendall, Augusta, Me.—p. 583.
Scarlet Fever, Diphtheria and Measles at Willard Parker Hospital, 1924. H. Emerson, New York.—p. 590.
Present Status of Periodic Health Examination. A. N. Thomson, Brooklyn.—p. 595.
American Medical Association and Periodic Health Examinations. J. M. Dodson, Chicago.—p. 599.
Health Examinations Past and Present and Their Promotion in Pennsylvania. E. B. Edie, Uniontown, Pa.—p. 602.
Place of Health Examinations in Practice of Medicine. A. N. Thomson, Brooklyn.—p. 607.
Preventive Medicine and General Practitioner. C. F. Wilinsky, Boston. —p. 610.
Importance of Differentiating Colonaerogenes Group in Examining Water. J. J. Hinman, Iowa City.—p. 614.
Lambton County Health Week. W. J. Bell, Toronto.—p. 620.
Rôle of Federal Government in Promoting Industrial Hygiene. W. S. Bean, Washington, D. C.—p. 625.

Atlantic Medical Journal, Harrisburg, Pa.

28: 621-724 (July) 1925

Diagnosis and Differential Diagnosis of Syphilitic Conditions of Eye and Adnexa. G. H. Cross, Chester.—p. 621.
Diagnosis of Aural Syphilis. F. R. Packard, Philadelphia.—p. 624.
Syphilis of Nose and Throat. G. M. Coates, Philadelphia.—p. 626.
Laryngeal Manifestations of Syphilis. F. O. Lewis, Philadelphia.—p. 630.
More Fundamental Causes of Hay-Fever and Asthma. S. A. Brumm, Philadelphia.—p. 637.
*Early Stages of Cardiovascular Degeneration. C. C. Wolferth, Philadelphia.—p. 640.
*Therapeutic Value of Complete Physical Examination. E. J. G. Beardsley, Philadelphia.—p. 647.
Some Unsuccessful Prostatectomies. T. C. Stellwagen, Philadelphia.—p. 652.
Suprapubic Prostatectomy in Bad Surgical Risks. L. Herman, Philadelphia.—p. 657.
*Treatment of Subacute and Chronic Bronchitis in Childhood. M. Ostheimer, Philadelphia.—p. 664.
Supervision of Dairy Herd is Necessary to Prevent Some Anaphylactic Symptoms in Infant Feeding. H. O. Rohrbach, Bethlehem.—p. 670.
Surgery in Diabetics. E. G. Alexander, Philadelphia.—p. 674.
Catarrh, or Sinusitis. N. P. Stauffer, Philadelphia.—p. 680.
Congenital Defect of Scalp. H. Hirshland, Reading.—p. 684.
Recent Development of Harrisburg Hospitals. D. N. Casey, Harrisburg. —p. 685.

Cardiovascular Degenerative Diseases.—The importance of the cardiovascular degenerative diseases as a cause of death is emphasized by Wolferth. Infections and obesity are apparently the most important factors in etiology. Symptoms may not manifest themselves until the disease is far advanced. Diagnosis and treatment are discussed briefly. It is suggested that the attempt be made to educate the laity to the desirability of periodic examinations.

Therapeutic Value of Physical Examination.—According to Beardsley there is a vastly greater therapeutic value connected with every complete physical examination than one is likely, at first thought, to realize. Such a procedure not only signally benefits the patient, directly and indirectly, but it stimulates in the physician a vigorous and singularly beneficial exercise in the use of what Sydney Miller terms "the muscles of the brain."

Treatment of Bronchitis in Childhood.—Ostheimer's routine treatment consists of good food, three nutritious meals a day, often after a bitter tonic consisting of nux vomica and gentian, with nothing to eat between meals; keeping the child out of doors as much as possible, or, in bad weather, on a covered porch or in a room with the windows open; keeping the windows open all night every night, with covering and clothing enough just to keep the child warm, not to cause perspiration; giving a daily bath, ending with a cool sponge and rubdown; sufficient exercise and rest. When the cough is bad enough to waken the child with a spell of coughing in the early morning, which is a very common symptom, he gives, in warm weather, syrup of the iodid of iron, from 5 to 30 drops, well diluted in from one-third to one-half glass of water, three times a day just after meals, followed by a good scrubbing of the teeth with a stiff toothbrush. During the winter months, however, these children, especially when really underweight, are given instead the pyrophosphate of iron, one-half to 1 grain, in cod liver oil, from one-half to one teaspoonful. If the cod liver oil is used in emulsion, usually double the dose is given.

California and Western Medicine, San Francisco

23: 801-944 (July) 1925

Some Medical Convictions and Meditations. G. MacGowan, Los Angeles. —p. 833.
As Layman Sees Us. E. N. Ewer, Oakland.—p. 838.
Susceptibility to Skin Diseases. G. D. Culver, San Francisco.—p. 842.
Unusual Urologic Lesions. F. S. Dillingham, Los Angeles.—p. 844.
Social Aspects of Free Dispensary. R. E. Ramsay, Pasadena.—p. 846.
*Use of Sodium Thiosulphate in Metallic Poisonings. G. F. Roberts, Salt Lake City, and A. J. Hosmer, Midvale, Utah.—p. 853.
*Backache in Gynecology. F. W. Lynch, San Francisco.—p. 856.
Doctor in Industrial Medicine. E. F. Glaser, San Francisco.—p. 859.
Radiographs of Head in Childhood from Clinical Standpoint. H. D. Eaton, Los Angeles.—p. 862.
Inferiority Complex; Psychiatric Significance. H. W. Wright, San Francisco.—p. 867.
Acute Pancreatitis. C. G. Toland, Los Angeles.—p. 870.

Sodium Thiosulphate for Metal Poisoning.—Roberts and Hosmer have found that sodium thiosulphate is the logical drug of choice in the treatment of acute and chronic poisonings by the group of heavy metals. It materially shortens the length of disability caused by these poisons. Moist applications of a 1 or 2 per cent. solution of sodium thiosulphate are beneficial in the treatment of burns and the dermatitis caused by arsenic and mercury. In acute cases of poisonings by these metals, the original dose of sodium thiosulphate should be 1 gm., intravenously, given once, twice or thrice daily, depending on the symptoms. In a series of more than 100 cases so treated there have been no reactions in either large or small doses, and the only difference in the effects seen following large and small doses is the rate of amelioration of symptoms.

Backache.—A preoperative and follow-up study made by Lynch of 608 patients following gynecologic operations shows that sacral or sacrolumbar backache constituted a complaint in 48 per cent. of cases, being found in 8 per cent. of ovarian tumors, 31 per cent. of fibroids, 46 per cent. of pelvic inflammatory disease, 58 per cent. of suspensions, 75 per cent. of relaxed vaginal outlets, and 23 per cent. of procidentias. Backache may be ascribed to gynecologic pathology because it remained cured for periods ranging from one to eight years in 87 per cent. of the 48 per cent. of the 608 gynecologic cases that had this symptom. Backache, which was cured by gynecologic operation, occurred in the following percentages of the cases: One hundred per cent. in ovarian tumors, 84.5 per cent. in marked retroflexions; 81 per cent. in extensive vaginal relaxations; 73 per cent. in chronic pelvic inflammations; 68 per cent. in fibroids; and 36 per cent. in complete procidentias. Backache in gynecologic conditions is due chiefly to pelvic congestion. Orthopedic conditions were responsible for between 17 and 23 per cent. of the total number of backaches of the series.

Indiana State Medical Association Journal, Ft. Wayne

18: 247-280 (July) 1925

Edema and Nephritis. M. H. Fischer, Cincinnati.—p. 247.
General Practitioner and His Relation to Surgery. M. F. Porter, Fort Wayne.—p. 250.
Traumatic Shock. C. A. Weller, Indianapolis.—p. 253.
Physiotherapeutic Treatment of Chronic Gonorrhea and Its Complications. C. L. Rowell, Chicago.—p. 257.

Journal of Bacteriology, Baltimore

10: 315-412 (July) 1925

Recent Work on Descriptive Chart and Manual of Methods. H. J. Conn, K. M. Atkins, J. H. Brown, B. Cohen, G. J. Hucker and F. W. Tanner.—p. 315.
Metabolism of B. Botulinus in Various Mediums. XXVI. E. Wagner and K. F. Meyer, San Francisco.—p. 321.

Journal of General Physiology, Baltimore

7: 671-768 (July 20) 1925

Carbon Dioxid from Nerve Cord of Lobster. G. H. Parker, Cambridge, Mass.—p. 671.
Inhibition of Cypridina Luminescence by Light. E. N. Harvey, Princeton, N. J.—p. 679.
Effects of Light on Luminous Bacteria. E. N. Harvey, Princeton, N. J. —p. 687.
Relative Importance of pH and Carbon Dioxid Tension in Determining Cessation of Ciliary Movements in Acidified Sea Water. C. Haywood, Philadelphia.—p. 693.
Critical Increment for Opercular Breathing Rhythm of Goldfish. W. J. Crozier and T. B. Stier, New Brunswick, N. J.
Temperature Characteristic for Heart Beat Frequency in Limax. W. J. Crozier and T. B. Stier, New Brunswick, N. J.—p. 705.
Kinectics of Starvation. II. Loss of Weight in Pigeons Subsisting on Water Alone. N. C. Wetzel, Cleveland.—p. 709.
Diurnal Changes in Acidity of Brycphyllum Calycinum. F. G. Gustafson, Ann Arbor, Mich.—p. 719.
Improved Type of Microscopic Electrocataphoresis Cell. J. H. Northrop and M. Kunitz, New York.—p. 729.
Critical Thermal Increments for Oxygen Consumption of Insect, Drosophila Melanogaster. P. R. Orr, Philadelphia.—p. 731.
Simple Micro Vessel with Electrode for Determining Hydrogen Ion Concentration of Small Amounts of Fluid. J. H. Bodine and D. E. Fink, Philadelphia.—p. 735.
Studies on Luminous Bacteria. II. Influence of Temperature on Intensity of Light of Luminous Bacteria. T. F. Morrison, Princeton, N. J.—p. 741.

Journal of Laboratory and Clinical Medicine, St. Louis

10: 787-874 (July) 1925

*Attempt to Find Antipeptic Enzyme in Blood. V. D. Keiser, Rochester, Minn.—p. 787.
*Insulin Action. E. C. Mason and C. W. Matthew, Ann Arbor, Mich.—p. 793.
Financing Clinical Pathology in Modern Hospital. W. Burdick, Denver. —p. 804.
Modification of Kolmer Reaction. F. O. Huntsinger, Great Lakes, Ill. —p. 810.
Case of Congenital Cardiac Defect (Cor Triloculare) Associated with Transposition of Pulmonary Artery and Arch of Aorta. M. G. Wohl, Omaha.—p. 812.
*Production of Immunity with Soluble Antigen of Pneumococcus. N. S. Ferry and L. W. Fisher, Detroit.—p. 817.
*Complement Fixation in Tuberculosis with Particular Reference to Group of 102 Positive Reactions. L. R. Jones, Castle Point, N. Y.—p. 823.
Influence of Experimental Atherosclerosis on Systolic Blood Pressure in Rabbits. S. Shapiro and D. P. Seecof, New York.—p. 826.
*Vernes Test for Diagnosis of Syphilis. L. H. Cornwall, New York.—p. 831.
Simple Apparatus for Coronary Perfusion of Mammilian Heart. W. T. Dawson, Philadelphia.—p. 853.
Improved Apparatus for Determination of Cholesterol. S. L. Leiboff, New York.—p. 857.
Uran-Gallein, New Rapid Elastic Tissue Stain Producing Simultaneous Staining of Nuclei and Protoplasm. F. Proescher and A. P. Krueger, Agnew, Calif.—p. 862.
Preservation of Antisheep Amboceptor with Glycerin. V. Langworthy and M. Wemple, Albany, N. Y.—p. 864.
*New Bacteriologic Stain. L. E. Harrison, Prescott, Ariz.—p. 866.
Use of Swimming Cup for Washing Tissues. E. Morford, Houston, Texas.—p. 867.

Antipeptic Enzyme in Blood.—In view of the fact that peptic ulcer is considered a local autodigestion of the stomach, an investigation was made by Keiser of the protective antienzyme theory of gastric protection. This theory, if it explains lack of autodigestion of the stomach, should likewise be applicable to the etiology of peptic ulcer. The methods described in the literature as demonstrating an antipepsin were used and found to be inaccurate. These methods neither proved nor disproved the presence or absence of such a substance.

Insulin Action.—Observations made by Mason and Matthew tend to show that insulin apparently acts independently of the central nervous system, the sympathetic nervous system, and the parasympathetic nervous system.

Production of Immunity with Soluble Pneumococcus Antigen.—It is evident by the work done by Ferry and Fisher that an aqueous extract of Type I pneumococcus may be obtained from the washings of the organisms, fairly stable at a temperature of 60 C. for an hour with antigenic properties extremely high, without resorting to chemical extraction; and suggests the possibility of the use of such an extract to prevent pneumonia in human beings.

Complement Fixation in Tuberculosis. — Observations reported on by Jones tend to promote the belief that positive reactions obtained with the complement fixation test when correctly performed indicate with a high degree of accuracy the presence of tuberculosis "reaction-bodies" irrespective of whether the disease is then clinically active or quiescent.

Vernes Test for Syphilis.—Cornwall considers the Vernes reaction a valuable addition to the serologic procedures for the diagnosis of syphilis.

New Bacteria Stain. — The stain described by Harrison consists of 1 gm. basic fuchsin added to 100 c.c. distilled water. To 75 c.c. of the filtrate is added 10 c.c. of 37 per cent. liquor formaldehydi, 10 c.c. of saturated aqueous solution of phenol and 5 c c of glycerol. Tubercle bacilli stain a brownish black against a light brownish yellow background Vincent's organism stains similarly. Other organisms, especially gram-positive bacteria, the diphtheroid group and spore forms also stain well with this stain.

Kansas Medical Society Journal, Topeka

25: 207-244 (July) 1925

Present Status of Medical Education. H. J. Duvall, Hutchinson—p 207.
Correct Dose Measurements of Radiation to Malignancies O W. Swope, Wichita—p 209.
Kidney Function H. E McCarthy, Kansas City—p 212.
School Child and Heart Strain M. True.—p 215.
Impacted Fracture of Neck of Femur. H Goodloe, Independence—p. 220.

Kentucky Medical Journal, Bowling Green

23: 343 392 (July) 1925

Surgery in Birth Injuries to Nervous System F P Strickler, Louisville—p 346
Nonsurgical Consideration of Gastric and Duodenal Ulcer. E F. Herzer, Louisville—p 348
Analysis of One Hundred Obstetric Cases. S D Breckenridge, Lexington—p 350.
Endocrines H K Osburn, Owensboro—p 352.
Animal Disease Control Work and Its Relation to Public Health. J E Gibson, Washington, D C—p 359.
Health Work. J. B Floyd, Richmond p 363
Rheumatic Fever in Children J. L Arkinson, Campbellsville—p 364
Proctitis W L Mosby, Bardwell—p. 368
Intestinal Obstruction from Tumor Ectopic Gestation: Cases J. G Sherrill, Louisville—p 369
Malignant Disease of Liver: Case. J. A Flexner and M Flexner, Louisville—p 372
Malaria R C Burrow, Cunningham—p 373
Gastric Symptoms in Extragastric Diseases C G Lucas, Louisville—p 374
Abnormal Menopause. T J Marshall, Bardwell—p 376.
Acute Glaucoma J F Dunn, Arlington—p 378
*Infection of Lung with Vincent's Spirillum. M Y Marshall, Henderson—p 380
Autosuggestion W. H Edwards, Danville—p 381
Clinical Significance of Abdominal Pain W A Bryan, Nashville, Tenn—p 381.
Surgical Treatment of Gastric and Duodenal Ulcers I. Abell, Louisville—p 386
Focal Infection H C Clark, Falmouth—p 386
Reduction and Destruction of Tonsils by Electrocoagulation B C Rose, Bryantsville—p 389

Infection of Lung with Vincent's Spirillum.—Marshall reports the case of a man who was very ill with what appeared to be an acute endocarditis with multiple arthritis. The patient was expectorating a considerable amount of prune juice colored, very foul smelling sputum This was negative for *Bacillus tuberculosis.* On the basis of a roentgen-ray examination a probable diagnosis of pulmonary tuberculosis was made in spite of the negative sputum. Still searching for tubercle bacilli in the sputum about the third day after admission, Marshall noticed Vincent's spirillum and *Bacillus fusiformis* in enormous numbers, and in almost pure culture He gave the patient intravenous injections of neoarsphenamin, three injections at two day intervals, of 0 15, 0 15 and 0 45 gm, respectively. Three more doses of 0 6 gm each were given at weekly intervals. The man recovered. The primary site of infection was around the teeth with an abscess at the root of the right lung.

Military Surgeon, Washington, D. C.

57: 1-112 (July) 1925

Tuberculosis in Military Service F Rho—p 1
*Panama Canal as Barrier Against World Wide Spread of Disease H C Fisher—p 18
Vital Statistics Division Surgeon General's Office, War Department A G Love—p 23
Pelvic Actinomycosis in Soldier W. M Brickner—p. 39
Clinical Studies in Military Delinquency. E King—p 51
Flight Surgeon W S Woolford—p 59.
*Dangers of and Treatment for Carbon Monoxid Poisoning. R R Sayers and W P Yant—p 64
Food and Disease A Egdahl—p. 75

Panama Canal Prevents Spread of Disease.—Fischer points out that far from proving a source of danger by facilitating the spread of diseases, the Panama Canal is an active force for their detection, suppression and eradication. It is a great and effective sanitary outpost protecting all the world that our commerce touches.

Treatment of Carbon Monoxid Poisoning.—Sayers and Yant emphasize that inhalations for a period of from twenty to thirty minutes of oxygen, or a 5 per cent. mixture of carbon dioxid in oxygen, if available, will, when given immediately, greatly lessen the number and severity of symptoms of carbon monoxid poisoning, as well as decrease the possibility of serious sequelae. All industries in which this type of poisoning commonly exists should provide apparatus (inhalers) for the efficient administration of these treatments. This apparatus should be placed at points most convenient for treating carbon monoxid poisoning and employees should be trained in its use so that resuscitatoin may be effected immediately..

Minnesota Medicine, St. Paul

8: 419 488 (July) 1925

Periodic Medical Examinations F. Billings, Chicago—p 419.
State Society. W L Burnap, Fergus Falls, Minn.—p 422.
*New Antipneumococcus Serum. W P. Larson and G. Fahr, Minneapolis—p 424
*Treatment of Toxemia Associated with Gastric Stasis, Obstructive and Nonobstructive. C S McVicar, Rochester, Minn—p. 427.
Surgery in Diabetic A. A Law, Minneapolis—p. 434.
Treatment of Gangrene in Arteriosclerotic Diabetes. A. H Beart, Minneapolis—p 436
Compression Therapy in Pulmonary Tuberculosis. A. T. Laird and Neil Blake, Nopeming, Minn.—p 440.
*Colds and Their Treatment with Chlorin. H S. Diehl, Minneapolis—p 445.

Antipneumococcus Serum.—Larson and Nelson have shown that rabbits may be immunized against pneumococci treated with sodium ricinoleate and that the serum of such rabbits protects normal rabbits against intraperitoneal and intravenous pneumococcic infections. On the basis of this work, a series of investigations of pneumonia in monkeys treated with this serum were planned by Larson and Nelson. Eight patients with lobar pneumonia were treated with the serum with good results Details are given.

Treatment of Toxemia with Gastric Stasis.—In the treatment of toxemia with gastric stasis McVicar has used intravenous injections of 10 gm. (1 per cent) of soduim chlorid, and 100 gm of glucose (10 per cent.) in 1,000 c.c. of freshly distilled sterile water. At least twenty minutes are allowed for each injection; 1, 2 or 3 liters of the solution are injected daily, the intravenous injections being supplemented by hypodermoclysis and proctoclysis Clinical improvement is heralded by free diuresis and restoration of peristalsis.

Chlorin Treatment of Colds.—Of patients with rhinitis treated by Diehl with chlorin, 23 6 per cent. recovered within one day after treatment with chlorin as compared to 6 7 per cent. of the control series; and 19 5 per cent of the entire group recovered within one day after treatment with chlorin as compared to 12 5 per cent of the control series The percentage of recoveries within three days after treatment was almost as large in the control series as in the chlorin series, 47.9 per cent. as compared to 51 4 per cent Any beneficial results from treatments with chlorin gas are experienced within the first day after the treatment.

Virginia Medical Monthly, Richmond

52: 207 274 (July) 1925

Medical Societies County and District Society, Aid to Country Physician, State and National Association D M Kipps, Front Royal—p 207
Lateral Sinus Thrombosis J A Babbitt, Philadelphia—p 209.
Heart Lesions J W Preston, Roanoke—p 214
Treatment of Anterior Poliomyelitis J. A Talbot, Washington, D. C—p 216
Intracranial Hemorrhage in New Born. R H DuBose, Roanoke—p 223
Hemorrhage During Latter Months of Pregnancy and Labor C J Andrews, Norfolk—p 226
Treatment of Epididymitis by Diathermy. W. W. S Butler, Jr, Roanoke—p 229
Syphilis of Lungs; Two Cases C R. Grandy, Norfolk—p 230
Diagnosis and Medical Treatment of Toxic Goiter J H Smith, Richmond—p 233.
Induction of Labor at or Near Term ' 'B Lankford, Norfolk—p 235
*Functional Capacity of Kidneys. W. T. Vaughan and W. R Graham, Richmond.—p. 239.

Hodgkin's Disease; Atypical Case. O. O. Ashworth, Richmond.—p. 243.
Appendicitis from Viewpoint of General Practitioner. J. G. Davis, Christiansburg.—p. 246.
*Early Removal of Drainage in Acute, Perforative, Gangrenous Appendicitis with Peritonitis. S. S. Gale, Roanoke.—p. 247.
*Relation of Throat Infections to Acute Nephritis. E. L. Caudill, Narrows.—p. 248.
Traumatic Appendicitis. C. H. Lupton, Norfolk.—p. 250.
Devil's Masque; a Dream. R. K. Flannagan, Richmond.—p. 252.
*Congenital Syphilis of Larynx in Children; Case. E. G. Gill, Roanoke.—p. 255.
Vincent's Angina; Case. R. E. Mitchell, Richmond.—p. 256.

Functional Capacity of Kidneys.—It has been the experience of Vaughan and Graham that in early kidney damage, particularly that resulting from low grade focal infection, the picture presents either a negative urinalysis or an occasional cast and leukocyte, with or without albumin, and a tendency toward fixation of specific gravity at a high level without ability to concentrate the night urine following heavy fluid intake. As a proper means of evaluation of kidney function, they recommend the two-hourly concentration test and the water excretion test.

Early Removal of Drainage Following Appendectomy.—Gale analyzes 100 cases of appendectomy for perforation with peritonitis. The outstanding features of this treatment were the removal of the appendix, the removal of the pus by a suction apparatus, the insertion of a rubber dam drain, one or two as the case may require, usually a long one going down into the Douglas culdesac, and occasionally a shorter one down to the stump of the appendix, and the complete removal of these drains within seventy-two hours, at the outside. Gale stresses the importance of early removal of the drain in these cases.

Acute Nephritis Following Throat Infection.—Caudill's attention was directed to this condition by the occurrence in his county of residence of an unusually large number of cases of acute nephritis following throat infections. He reports two cases in detail.

Congenital Syphilis of Larynx.—Gill's patient was 12 years old. His father was living and well. His mother had died of syphilis of the larynx. The boy had had the usual local symptoms and presented a 4 plus Wassermann reaction. Under neo-arsphenamin treatment he got on well.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Australian Journal of Experimental Biology and Medical Science, Adelaide

2: 61-133 (June 16) 1925

*Hydrogen Peroxid and Bacterial Growth. F. M. Burnet.—p. 65.
*Effect of Dyes on Bacterial Growth. F. M. Burnet.—p. 77.
Influence of Cholesterol and Oxycholesterol on Multiplication of Infusoria (Enchelys). T. B. Robertson.—p. 83.
Experimental Studies in Growth. XVII. T. B. Robertson.—p. 91.
Organ Specificity. G. F. S. Davies, C. H. Kellaway and F. E. Williams.—p. 117.
Stimulating Effect of Phosphatic Fertilizers on Azofication in South Australian Soils. H. K. Lewcock.—p. 127.

Relation of Hydrogen Peroxid to Bacterial Growth.—The relation of hydrogen peroxid to bacterial growth was studied by Burnet. He found that exposure of nutrient agar plates to light results in the appearance of traces of hydrogen peroxid sufficient to inhibit the growth of isolated staphylococci and other organisms. This inhibition can be neutralized by diffusible products of growth of staphylococci. These diffusible substances, some of which are thermostable, act as reducing agents, destroying peroxid as it is formed. An inhibition of growth due to potassium cyanid can also be neutralized by these substances. Anaerobic growth of staphylococci is possible in concentrations of cyanid higher than those completely inhibiting aerobic development. It is concluded that the presence of catalase and of the diffusible sustances studied in the bacterial colony is an indication of a primitive means of keeping constant immediate environment, so as to allow the type of metabolism most suited to the organism to be maintained.

Effect of Dyes on Bacterial Growth.—It is shown by Burnet that the effects on growth of bacteria of such different nocuous agents as heat, acid fuchsin and potassium cyanid, as well as hydrogen peroxid, can be neutralized to a certain degree by what are almost certainly the same products of growth in each case. This suggests that in different ways these agents, and probably many others, all affect first one and the same function of the growing organism. This function can only be the power possessed by the organism of dealing affectively with hydrogen peroxid as it is formed. It is this function, then, that is the vulnerable point of the organism in relation to its environment.

British Journal of Anesthesia, Manchester

2: 97-156 (Jan.) 1925

Practice of Anesthesia in France. H. Bourbon.—p. 97.
Anesthesia and the Bad Risk Patient. G. W. Crile.—p. 105.
Influence of Anesthesia on Results of Major Abdominal Operations. H. Finsterer.—p. 112.
Case of Acidosis Following Chloroform Anesthesia. H. P. Fairlie.—p. 121.
Acetylene-Oxygen Anesthesia. A. Goldman and J. D. Goldman.—p. 122.
Percentage of Ether in Blood, Milk, Urine and Breath During Surgical Narcosis with Ether. K. Gramen.—p. 127.
Alleged Inconveniences of Local Anesthesia with Procain. R. Riccio and F. B. La Rossa.—p. 134.

3: 1-48 (July) 1925

Sacral Anesthesia. Minor Points of Major Clinical Importance. G. Labat.—p. 5.
Anesthesia in Diabetes. I. M. Rabinowitch.—p. 21.
Some Relations of Metabolism to Premedication and Anesthesia. E. I. McKesson and F. W. Clement.—p. 32.

British Journal of Tuberculosis, London

19: 113-162 (July) 1925

Artificial Sun Treatment. A. Eidinow.—p. 113.
Surgical Treatment of Pulmonary Tuberculosis. B. Hudson and G. Turini.—p. 127.
Heliotherapy and Actinotherapy at Heritage Craft Schools, Chailey. G. M. Levick.—p. 144.
Hygienic and Economic Factors in Incidence of Tuberculosis Among School Children. A. Priestman.—p. 148.

Irish Journal of Medical Science, Dublin

5: 145-192 (April) 1925

Vital Statistics of Irish Free State. W. Thompson.—p. 145.
Cylindroma of Cheek. T. T. O'Farrell.—p. 163.
Case of Auricular Fibrillation with Slow Ventricular Rate. L. Abrahamson.—p. 165.
Deep Roentgen-Ray Therapy in Coombe Hospital. L. Cassidy and R. Stumpf.—p. 170.

5: 193-240 (May) 1925

Radium Therapy. W. C. Stevenson.—p. 194.
Radium Therapy. M. R. J. Hayes.—p. 214.
Laryngeal Obstruction (Effusion) in New-Born Child. J. S. Quinn.—p. 226.

5: 241-288 (June) 1925

Treatment of Bladder Tumors. A. Fullerton.—p. 243.
*Jejunostomy in Acute General Peritonitis. S. Pringle.—p. 260.

Jejunostomy in Acute General Peritonitis.—The class of case in which Pringle urges jejunostomy is the diffuse general suppurative peritonitis of the lower abdomen associated with appendicitis, tubal disease and other septic conditions in the pelvis—the cases in which the intestines in the pelvis are acutely inflamed and the infection is already spreading upward into the abdomen proper, so that immediately on opening the abdomen pus is seen lying between the congested coils of small intestine without limiting adhesions and, if a hand is passed down into the pelvis, a regular well of pus is found in Douglas' pouch. The operation he performs is after the manner of a Witzel's gastrostomy.

Journal of Tropical Medicine and Hygiene, London

28: 237-256 (July 1) 1925

Spirocheta Bronchialis Castellani and Bronchial Spirochetosis. F. DeMello.—p. 237.
*Vaginal Monilias and Vaginal Moniliases. A. Castellani.—p. 242.
Cestode Genus Hydatigera Lamarck, 1816, Species Reditenia Sambon, 1924. C. W. Stiles and M. Orleman.—p. 249.
*Nongonorrheal Urethritis. A. Castellani.—p. 250.

Vaginal Monilias.—According to Castellani and Taylor *Monilias* and other fungi appear to be constantly absent in the normal vagina. In certain cases of vaginitis, vulvovaginitis and of vuval, vaginal and aniperineal pruritus, *Monilias* are abundantly present and may, perhaps, play some rôle in the etiology of such cases, or at least produce the associated purulent or mucopurulent discharge. Two principal types of vaginitis are associated with the presence of *Monilias*, namely (*a*) the membranous type, presenting white patches of membrane on the vaginal mucosa, the so-called "vaginal thrush," and (*b*) the purulent type, with thick purulent vaginal discharge containing enormous numbers of *Monilias* and sometimes simulating gonorrheal infection. Attention is also directed to the presence of several genera of fungi other than the *Monilias* in the vaginal secretion of cases of chronic vaginitis. A case of vaginal aspergillomycosis and a case of vulvar hemisporosis are described.

Nongonorrheal Urethritis.—Practically all the protozoa and fungi found in nongonorrheal urethritis of the male have been found by Castellani also in cases of vaginitis and vulvovaginitis and he regards it as probable that in certain cases and under certain circumstances these affections may be transmitted by sexual intercourse.

Lancet, London

2: 53-108 (July 11) 1925

Disorders of Motility and of Muscle Tone. S. A. Kinnier Wilson.—p. 53.
Treatment of Phthisis with Sanocrysin. K. Faber.—p. 62.
Cholecystography in Diagnosis of Cholecystic Disease. R. D. Carman.—p. 67.
*Anuric Diabetic Coma. A. C. Begg.—p. 69.
Technic of Splenic Puncture in Diagnosis of Kala-Azar. P. Manson-Bahr.—p. 70.

Anuric Diabetic Coma.—The points common to diabetic coma with acidosis and diabetic coma with absent or slight acidosis Begg concludes are: (1) drowsiness going on to coma; (2) vomiting (usually) and constipation; (3) lowered tension of eyeballs; (4) raised blood sugar; (5) glycosuria; (6) tendency to heart failure. The differences between the two types are: Ordinary diabetic coma with acidosis has (1) blood sugar moderately high, blood urea about normal; (2) urine good quantity and early increase with treatment, much acetone and diacetic acid, no albumin (usually); (3) clinically, coma usually deep some time before death, air-hunger marked, odor of new-mown hay in breath; (4) prognosis—insulin treatment usually cures. Diabetic coma with absent or slight acidosis has (1) blood sugar very high, blood urea very high; (2) urine usually small in quantity going on to complete anuria, little or no acetone or diacetic acid, some albumin; (3) clinically, coma often not deep till just before death, air-hunger absent or slight, no odor of new-mown hay in breath; (4) prognosis—usually fatal from anuria. Whether this type of diabetic coma without acidosis is a distinct entity is doubtful, as some of the cases began with the typical signs of ordinary diabetic coma, and it was only when the acidosis had cleared up under treatment, without corresponding clinical improvement, that they showed themselves to be of the definite anuric type. As regards symptoms, physical signs, course and prognosis, it is a distinct clinical type and the immediate cause of death is suppression of urine.

Sei-i-Kwai Medical Journal, Tokyo

44: 1-18 (June) 1925

Physicochemical Properties of d'Herelles Lytic Agents. Y. Yasaki.—p. 1.
Glycogen in Central Nervous System of Chicken. C. Koyanagi.—p. 16.

South African Medical Record, Cape Town

23: 245-268 (June 27) 1925.

Infections of Hand. R. A. Ross.—p. 245.
Inflammation. G. K. Cross.—p. 257.

Tohoku Journal of Experimental Medicine, Sendai, Japan

6: 1-190 (June 28) 1925

*Epinephrin Hyperglycemia. I. Relation of Epinephrin to Glycogen Centent of Muscle. T. Ohara.—p. 1.
*Id. II. Effect of Removal of Liver on Epinephrin Hyperglycemia and Glycogen Content of Muscle. T. Ohara.—p. 23.
Variations of Pneumococcus. T. Takami.—p. 41.
New Method of Production of Active Pneumococcus Serums. T. Takami.—p. 65.
Susceptibilty of Young Rabbits to Poisons. H. Takahashi.—p. 72.
Trichophytons in Japan. M. Takeya.—p. 74.
*Absorption of Nutritious Substances in Several Parts of Intestine. F. Nakawawa.—p. 130.
*Influence of Intravenous Injection of Epinephrin on Coagulation Time of Blood. S. Hirayama.—p. 160.
Sugar Content of Digestive Juices of Dog Poisoned with Phlorhizin. S. Hyrayama. —p. 168.
Effect of Pilocarpin and Atropin on Sugar Content of Bile in Guinea-Pig. S. Hirayama.—p. 186.

Epinephrin Hyperglycemia.—Even in the animals whose liver glycogen was made to disappear almost entirely through starvation, Ohara noted that hyperglycemia is very conspicuously developed by epinephrin. The repeated injections of epinephrin to fasting rabbits developed glycosuria and hyperglycemia to a high degree and the glycogen contents both in the liver and in the muscle are about the same as in normal animals. There is no difference of resistance to epinephrin between the glycogen in liver and the glycogen in muscle. In phosphorus poisoning, the glycogen content in muscle and in liver decreases greatly and epinephrin hyperglycemia is exceedingly inconspicuous.

Epinephrin Hyperglycemia.—The intravenous injection of epinephrin in the Eck-fistula dog produced the hyperglycemia and glycosuria the same as the subcutaneous epinephrin injection did. Epinephrin hyperglycemia is also developed in hepatectomized rabbits. The diminution in the content of muscle glycogen is far greater than that of the control rabbits in which the same procedure is applied, except the epinephrin; the progressive fall of blood sugar is produced and the diminution of the muscle glycogen is also far slighter. From these data it is inferred by Ohara that the epinephrin *hyperglycemia in the rabbits whose liver is removed, may be* due to the breakdown of the glycogen in muscles.

Absorption of Foods in Intestine.—Nakazawa found that the absorption of all substances, except salt, in the large intestine, is much less than in the small intestine; the rate of absorption in the colon ascendens corresponds to about half and in the rectum from one third (glucose) to one fourteenth (peptone) of that in the jejunum. The substances introduced into the rectum, as a nutrient enema, might be partly transported into the upper part of the large intestine by antiperistalisis, so that the absorption in the total large intestine should be taken into account in order to gauge the effect of rectal feeding. In rabbits, if, as the rate of absorption in the large intestine, the average of those in the rectum and colon ascendens is taken, it is 36 per cent. for sodium chlorid, 24.8 per cent. for glucose, 17.2 per cent. for glycocoll, 14.9 per cent. for fatty acids and 8.5 per cent. for peptone. The rate of absorption in the large intestine, in general, is nearly one half or one third of that in the jejunum, a fact indicating that the absorption in the large intestine cannot be overlooked in practice. Since there is no essential digestion in the large intestine, unless the active enteric juice which is rapidly transported here, as in the case of diarrhea, comes into action, it seems to be sensible to use such final products of digestion for the purpose of effective rectal alimentation. Water is absorbed better when administered in hypotonic solution than in isotonic or hypertonic solution. For certain clinical purposes (e. g. uremia), if the rapid and abundant administration of water is more necessary than for nutrition, it should be introduced in dilute solution per rectum. When water alone is applied as a drop enema, its effect is nearly the same as when it is given per os, since the rate of absorption in the large intestine is equal or slightly greater than that in the small intestine.

Influence of Epinephrin on Blood Coagulation Time.—Hirayama asserts that in the rabbit, epinephrin, given intravenously, in small doses (0.001 mg. per kilogram of body weight) as well as in large doses (from 0.05 to 0.1 *mg. per* kilogram) retards the coagulation time of the blood, while it hastens clotting in more than half the cases when medium doses (from 0.01 to 0.03 mg. per kilogram) are injected. The blood in the bilaterally splanchnectomized rabbit clots more promptly than that in the normal one.

Bulletin de l'Académie de Médecine, Paris

93: 715-754 (June 30) 1925

Alastrim: Attenuated Smallpox. A. Netter.—p. 723.
Poisoning from Drugs of Barbituric Group. C. Achard et al.—p. 732.
The Smallpox Epidemic in Switzerland. A. Alcay.—p. 739.
Cinematography of the Heart. Lutembacher.—p. 746.
Eosinophilia from Roentgen-Ray Treatment. J. Sabrazès.—p. 748.

94: 755-780 (July 7) 1925

*Alastrim. P. Teissier.—p. 756.
Transmission of Smallpox by Imported Rags, etc. L. Camus.—p. 767.
Vesicular Eruption After Meningitis. Nobécourt et al.—p. 771.
Spartein as Heart Tonic. Soula and Delas.—p. 775.
Pyrethrum Extract Destroys Lice. Juillet and Diacono.—p. 778.

Prophylaxis and Treatment of Alastrim.—Considering alastrim and smallpox as identical diseases, Teissier emphasizes that the same preventive measures should be employed. He believes that the serum from alastrim convalescents may prove effectual in the treatment of alastrim.

Schweizerische medizinische Wochenschrift, Basel

55: 573-592 (June 18) 1925

Seborrhea Capitis in Infants. Dind.—p. 573.
The Sexual Hormones in the Female. E. S. Faust.—p. 575.
Radioactivity of Mineral Muds. L. Blumer.—p. 579. Conc'n.
The Goiter Problem. A. Greil.—p. 582.

55: 593-616 (June 25) 1925

Multilocular Echinococcus of the Liver. A. Posselt.—p. 593.
*Influence of Chlorophyl on Organs. Gordonoff and N. Kitamura.—p. 605.
Orthopedics in Abdominal Surgery. M. Bourcart.—p. 607.
To Promote Breast Nursing. Imboden-Kaiser.—p. 609.

Influence of Chlorophyl on Asphyctic Organs.—In a series of previous papers, Bürgi and his co-workers have emphasized the general stimulating effect of chlorophyl on the animal organism. Gordonoff and Kitamura studied the effect of acetone-soluble chlorophyl on isolated organs (intestines of rabbits, intestines of guinea-pigs and frog-heart). In every instance they noticed a considerable stimulation of the muscular contractions. This effect was more pronounced in asphyctic organs than in those containing oxygen.

55: 617-636 (July 2) 1925

Insidious Symptoms of Inherited Alcoholism. M. Roch.—p. 617.
Uncomplicated Congenital Stenosis of the Pulmonary Valve; Three Cases. H. Müller, Jr.—p. 619.
*Primary and Secondary Sex Characteristics. E. Witschi.—p. 623.
Diathermy Treatment for Weak Hearts. G. Herzer.—p. 625.
The Tuberculous Expectoration. Müllhaupt.—p. 628.

Hormones and Sex Characteristics.—It is quite generally accepted that the development of the secondary sex characteristics is exclusively dependent on the endocrine secretion of sexual glands. Witschi enumerates several instances in which hermaphrodites showed a different development in two symmetrical sex organs (fallopian tubes, vesicles, mammae). These phenomena are not explainable by the above assumption, and Witschi believes that the action of hormones alone does not satisfactorily account for the facts.

Brazil-Medico, Rio de Janeiro

1: 249-258 (May 16) 1925

*Antivenin for Spider Bites. Vital Brazil and J. Véllard.—p. 249.
Diphtheric Conjunctivitis. E. Campos.—p. 252.

Antiserum Against Spider Bites.—Spider poisons may be grouped as neurotoxic and those that induce necrosis. The poison of *Lycosa raptoria* is of the latter type. Vital Brazil and Véllard have produced an antivenin for the bites of this spider which is the one that causes the majority of such mishaps in Brazil. They report one case in which injection of 10 c.c. had excellent results, in the robust man, aged 40.

1: 259-270 (May 23) 1925

*Ocular Complications of Sinusitis. J. Vieira.—p. 259.

Complications in the Eyes with Sinusitis.—Vieira states that he has encountered about ten cases with orbit-ocular complications with different forms of sinusitis in his 200 operative cases of sinusitis. He describes four cases in detail to emphasize that the diagnosis and treatment should be prompt in order to avoid persisting neuritis.

1: 271-286 (May 30) 1925

*Physiology and Pathology of the Thyroid. III. A. L. Pimenta Bueno.—p. 271.
Foreign Body in the Eye. E. Campos.—p. 279.

The Thyroid.—Pimenta Bueno argues that all the organs nourished by one arterial trunk form a solid system, as it were, functionally united besides the blood connection. This system is independent and opposed to all the other systems. This is evident in the thyroid, and the other organs fed by the trunk vessel in the neck, hyperplasia accompanying thyroid hyperactivity.

Prensa Médica Argentina, Buenos Aires

11: 1141-1184 (May 20) 1925

Research on the Sympathetic: Pigmentations. M. R. Castex and A. F. Camauer.—p. 1141.
*Auscultation of the Aorta in Children. E. Beretervide et al.—p. 1148.
Experimental Infection of the Toad with the Cruz Trypanosome. F. L. Niño.—p. 1154.
Ultrafiltrable Calcium in Cancer Serum. Roffo and Acuña.—p. 1163.

Auscultation of the Aorta in Children.—Beretervide and his co-workers present teleroentgenograms to sustain their assertions that the lesions of the aorta from congenital syphilis are as constant and as frequent in children as in acquired syphilis at any age. These lesions can be readily diagnosed, bearing in mind that the aorta in children is to the left of the middle line of the sternum, on a level with the third intercostal space, in the majority of cases, where it can be auscultated. Sometimes it is heard at the body of the sternum, or at the right margin in rare cases. The pulmonary artery opens directly into the aorta, the tube forming the descending aorta, at least during the first period after birth. These statements are based on more than 4,000 children.

Semana Médica, Buenos Aires

1: 1145-1200 (May 28) 1925

*Crico-Arytenoid Arthritis. J. A. Cruciani and A. Suárez.—p. 1145.
Treatment of Chronic Appendicitis with Ptosis. F. E. Ciarlo.—p. 1148.
Habitual Death of the Fetus. A. J. Guiroy.—p. 1158.
High Displacement of Left Kidney. Salleras and Blacksley.—p. 1161.
Care After Intervention on the Nose. C. F. Roldán Vergés.—p. 1162.
Eclampsia in First Half of Pregnancy. M. L. Pérez and A. M. Brea.—p. 1165.
The Hygiene of Sports. A. Vinaj.—p. 1167.
Ferrán's Theory of Tuberculosis. F. Isleño.—p. 1174.
Inhalation Treatment of Asthma in Bronchitis. R. de Mendévielle.—p. 1179.

Suppurating Arthritis of the Crico-Arytenoid Articulation.—Cruciani and Suárez describe the case of a girl of 13 who had been treated with serotherapy for epidemic cerebrospinal meningitis. Twelve days after defervescence tachycardia developed. This subsided in two days but the patient had difficulty in swallowing. This increased to dyspnea, suffocative breathing, and an abscess was found in the crico-arytenoid tissues. The suffocation became so severe that tracheotomy was necessary but the patient died in a few hours. Necropsy revealed the inflammatory nature of the lesion in the larynx but no meningococci could be cultivated from it. The case teaches, they say, that when the tachycardia appeared the meningococcus antiserum should have been resumed. This might have warded off the further complications.

Deutsche medizinische Wochenschrift, Berlin

51: 1055-1096 (June 26) 1925

Psychiatry and Endocrine Glands. Klieneberger.—p. 1055.
Radioactivity and Metabolism. J. Stoklasa.—p. 1057.
Hysteria as Cause of Death. M. Rosenfeld.—p. 1060.
*Methyl Alcohol Poisoning. H. Leo.—p. 1062.
Langer's Immunization Against Tuberculosis. E. Seligmann and F. v. Gutfeld.—p. 1064.
Surgical Treatment of Bronchial Asthma. A. Kuttner.—p. 1066.
Eugenics and Heredity in Circulatory Diseases. G. Galli.—p. 1067.
Flat Chest and Exercise. W. Siebert.—p. 1068. Conc'n.
Posture of Head and Arms. H. Hoff and P. Schilder.—p. 1069.
Hackenbruch's Extension in Fractures. Momburg.—p. 1070.
Specific Treatment of Phlyctenular Eye Disease. F. Jendralski.—p. 1071.
Elasticity of Arch Supporters. E. Fischer.—p. 1075.
History of German Medical Journals. W. v. Brunn.—p. 1077.
Present Doctrines of Homeopathy. E. Harnack.—p. 1082. Conc'n.

The Nature of Methyl Alcohol Poisoning.—Methyl alcohol as such is much less toxic for cells and isolated organs than ethyl alcohol. Its well known high toxicity after ingestion must be due to chemical changes, which take place in the body. More than thirty years ago Pohl showed that methyl alcohol is changed into formic acid, and he suggested that the latter has the deleterious effect. Leo demonstrated experimentally that formic acid produces the same symptoms in animals as methyl alcohol. He states that its effect is not only the production of an acidosis, but that it has specific toxic actions. He found that large doses of sodium bicarbonate had a markedly beneficial effect in experimental poisoning in the dog.

51: 1097-1138 (July 3) 1925

Gastric Pain. H. Strauss.—p. 1097.
Acetonemic Vomiting in Children. Meyer and Bamberg.—p. 1100.
*Infections Without Clinical Symptoms. H. Reiter.—p. 1102.
*Surgery of the Hypertrophic Breast. J. Joseph.—p. 1103.
Surgical Treatment of Opacity of the Cornea. C. Bliedung.—p. 1105.
Medical Treatment of Gallbladder Disease. G. Leopold.—p. 1106.
Delivery in Breech Presentation. W. Hannes.—p. 1110.
Insulin in Experimental Cancer. R. Münzner and F. Rupp.—p. 1113.
Iron Therapy. Arneth.—p. 1115.
Roentgen-Ray Pictures of Pulmonary Apices. E. Meinicke.—p. 1115.
Iodized Oil in Diagnosis of Bronchiectasis. W. Landau —p. 1115.
Edematous Vulva in Pregnancy. Weissenberg. Reply. Hoehne.—p. 1116.
Sellheim's Determination of Sex and Its Import for Roentgen-Ray Experiences. M. Fraenkel.—p. 1116
Meningitis in Children. S. Wolff.—p. 1117.
Tracheotomy in Infants. E. Koehn.—p. 1119.
Obstetrical Diagnosis. F. Geppert.—p. 1120. Cont'd.

Infections Without Disease.—Reiter emphasizes the importance of infections, which do not lead to clinical disease, for the development of a state of relative immunity. He believes that many conditions which we call today congenital immunity are the results of unnoticed infections. On the basis of this hypothesis, many epidemiologic problems may be satisfactorily explained, and directions for artificial immunization may be deduced.

Surgical Treatment of the Pendulous Breast.—Joseph describes in detail two different procedures which he has found successful.

Deutsche Zeitschrift für Chirurgie, Leipzig

191: 1-144 (June) 1925

*Gastric and Duodenal Ulcer. E. Kutscha-Lissberg.—p. 1.
*Benign Tumors of the Stomach. H. Schnitzler.—p. 29.
*The Legg-Perthes and Similar Affections. H. Friedrich.—p. 40.
Deformity of the Foot from Overstrain. G. Brandt.—p. 65.
*Internal Secretion of Salivary Glands. Goljanitzki.—p. 79.
Case of Hemangioma of the Spleen. H. Naher.—p. 87.
*Splenectomy in Thrombopenia. H. Harttung.—p. 91.
*Acute Cholecystitis with Necrosis of the Pancreas. Weber.—p 94.
Spontaneous Rupture in Hydronephrosis. O. Schreuder.—p. 100.
Papillomatous Tumor in the Ureter. R. Kleinschmidt.—p. 103.
Necessity for Individualization in Treatment of Habitual Dislocation of the Shoulder. F. Mandl.—p. 108.
Operative Treatment of Snapping Knee. F. Mandl.—p. 121.
Painful Os Tibiale Externum. S. Simon.—p. 127.
Congenital Salivary Fistula in Cleft Cheek. Pommrich.—p. 136.
Motor Innervation of the Diaphragm. W. Meisezahl.—p. 142.

Surgical Treatment of Gastric and Duodenal Ulcer.—Kutscha-Lissberg analyzes 316 operative cases, including twelve duodenal ulcers, and twelve with perforated duodenal and thirty-two with perforated gastric ulcers. Gastro-enterostomy was done in ninety-two cases; one patient died a week after the stool had been free from blood, and another from the vicious circle with torsion of the loop. In the seven cases with severe hemorrhage, one hemophiliac had been prepared with calcium lactate; the others with normal serum. Gastro-enterostomy alone gave better results than anticipated; no peptic ulcer was observed after it—possibly a casual coincidence. The fewest complicating pneumonias were observed after the Billroth I; probably because the respiration is less hampered by the after-pains, and the lungs suffer less from reflex disturbances in circulation.

Benign Tumors of the Stomach.—Schnitzler states that there are about 100 cases on record in which the operation showed a nonmalignant tumor instead of the expected ulcer or cancer. He adds another case to the list, the man, aged 55, previously free from all stomach disturbances, developed a palpable tumor in the epigastrium with roentgen shadows indicating an infiltrating tumor. The operation showed a small growth, spasm of the pylorus having evidently been responsible for the misleading roentgenograms, the tumor itself being no larger than a pea.

Legg-Perthes Disease—Friedrich presents evidence that the roentgenograms are liable to be misleading in certain stages of this and similar affections of the bone. They deceptively simulate a destructive process in the bone.

The Internal Secretion of the Salivary Glands.—Goljanitzki believes that the salivary glands, in relation to the metabolism of sugar, act as antagonists to the chromaffin system and the cortex of the suprarenals. Consequently there may be indications for increasing the internal secretion of the salivary glands in case of insufficiency of the pancreas. Or by increasing the internal secretion of the salivary glands we may aim to paralyze excessive functioning of the suprarenals. He describes five clinical cases in which treatment was applied on this basis. In one he gave daily injections of an extract of beef parotid gland in a case of pyemic marasmus from an empyema; in the others he ligated Steno's duct at the edge of the masseter. His impressions were favorable in the empyema case and in a case of gangrene of the foot in a diabetic.

Splenectomy in the Acute Stage of Thrombopenic Purpura.—Harttung reports a case which brings to five the instances on record of splenectomy as a last resort in acute thrombopenia. Four of the patients died. On the other hand, eighteen were cured of the twenty chronic cases treated in this way.

Acute Cholecystitis with Fat Necrosis of the Pancreas.—Weber reports several cases, including one in which, with the pancreatitis in the course of old gallstone disease, the respiration center, the parotid gland and the kidneys were all involved. The involvement of the salivary gland with pancreatitis is a rare occurrence, although the pancreas is comparatively often involved with acute parotitis. His treatment was with infusion of isotonic solution of glucose, to combat the anuria, stimulants and atropin. The severe clinical picture harmlessly subsided.

Klinische Wochenschrift, Berlin

4: 1193-1240 (June 18) 1925

*Variability of Pathogenic Germs. H. Braun.—p. 1193.
*Infectious Diseases in Children. R. Degkwitz.—p. 1197.
Induced Changes of Muscle Tissues. Goldstein and Riese.—p. 1201. Cont'd.
*Scurvy-Preventing Substances in Milk. A. Frank.—p. 1204.
*Neutral Salt Reactions in Skin. S. Bommer.—p. 1208.
Changes in Rabbit Brain After Intratesticular Inoculation of Brain Tissue from Cases of General Paralysis. H. Pette.—p. 1209.
Etiology of Tubal Pregnancy. F. Kok.—p. 1213.
Improvement of Abderhalden's Reaction. W. Wittkop.—p. 1214.
Motor Innervation of the Stomach. Y. Nakashima.—p. 1214.
Intra-Ocular Pressure and the *p*H of the Blood. A. Meesmann.—p. 1214.
Spontaneous Recovery from Paranephritis. H. Normann.—p. 1215.
Extirpation of the Spleen. F. Lotsch.—p. 1216.
Present Status of Digitalis Treatment. P. Neukirch.—p. 1222.
Examination in Physiology. F. Knoop.—p. 1238.

Variability of Pathogenic Germs.—Braun reviews the changes undergone by micro-organisms under the influence of various external factors. The anthrax bacillus forms capsules in the animal body, and acquires by this a new antigen. Trypanosomes and spirochetes may change not only morphologically but also biologically. About twenty-two variants of trypanosomes have been artificially obtained, and all are immunologically different. This immunologic variability of the micro-organisms speaks for the advantages of autogenous vaccines. Cultivation of germs in their antiserums or in antiseptics gave interesting results, which showed that the ectoplasma contains different antigens from the endoplasma. Only the latter is essential for life. Immune serums prepared with the intact germs or with one of these substances differ considerably. There is no parallelism between their agglutinating, bactericidal and opsonin values. He agrees with Felix in regard to the importance of these factors in preventive treatment and in serotherapy.

Acute Infectious Diseases in Children.—Degkwitz points out that the incidence of acute infectious diseases of children depends chiefly on virulence and susceptibility, because transmission occurs mostly before or after the actual sickness of the person to whose disease they are exposed. Measles could and should be eradicated, according to Pirquet, by three weeks of world-wide general quarantine. There are only two ways of fighting the infectious diseases of children beyond these; namely, by preventive immunization and improvement of general conditions, since rachitic children get infected more readily and are more liable to die than those who are correctly nourished in a hygienic environment.

Content of Milk in Scurvy-Preventing Substances.—Frank could not prevent scurvy in guinea-pigs by feeding them with human or goat's milk. The commonly sold cow's milk was better—but not the special milk for children.

Neutral Salt Reactions in the Skin.—Bommer has continued his investigations on the reaction of the skin to intracutaneous injections of various salts. The kation determines the quality of the reaction, while the anion conditions its time and strength. Exudation follows injection of calcium salts. Potassium produces a prolonged burning pain.

Wiener Archiv für innere Medizin, Vienna

10: 165-466 (May 15) 1925

Tuberculous Sepsis. R. Bálint.—p. 165.
True Epinephrin Reaction. K. Csépai.—p. 179.
*Local and General Action of Epinephrin. S. Weisz and S. Márkus.—p. 187.
*Antagonism of Insulin and Epinephrin. Csépai and Weiss.—p. 195.
Epinephrin Reaction in Gastric Ulcer and Asthma. K. Csépai and S. Sümegi.—p. 201.
*Basal Metabolism in Exophthalmic Goiter. Csépai and Schill.—p. 205.
*The Epinephrin Reaction. K. Csépai et al.—p. 213.
Pulmonary Tuberculosis and Vegetative System. von Kern and Kunze.—p. 223.
*Phosphates and Epinephrin Reaction in Man. S. Weiss.—p. 231.
Diagnosis in Abdominal Diseases. E. Rosenthal.—p. 235.
*Blood Pressure in Test Diuresis. E. Schill and J. Patai.—p. 257.
Symptoms and Treatment of Polycythemia. L. Hollaender.—p. 283.
*Residual Nitrogen and Urea. E. Schill and J. Kunze.—p. 329.
Protein Injury in Diabetes. Z. Ernst and K. Tóth.—p. 339.
*Enhancement of Oxidation of Diacetic Acid. Ernst and Förster.—p. 351.
Cholesterol of Wassermann and Sachs-Georgi Antigens. Frank—p. 357.
Hypertension and Hyperglycemia. S. Hetényi.—p. 369.
Diagnostic Use of Antitryptic Reaction. Purjesz, Jr., and Weiss.—p. 377.
*Resorption from Subcutaneous Tissue. S. Weiss and E. Kolta.—p. 393.
*Action of the Pituitary. S. Weiss and A. Telbisz.—p. 401.
Pleuropneumonia Due to Streptothrix. E. Schill.—p. 409.
Phlorhizin Glycosuria in Nephritis. S. Hetényi.—p. 415.
Function of Reticulo-Endothelium and Formation of Hemolysins. S. Weiss and J. Kunze.—p. 451.
Blocking the Reticulo-Endothelia with Iron. Weiss and Sümegi.—p. 457.

Local and General Action of Epinephrin.—Weiss and Márkus found that epinephrin delays the resorption of substances injected simultaneously under the skin only in certain patients. It had no effect on the blood pressure in these cases. They conclude that the subcutaneous injection cannot take the place of the intravenous test.

Cardiovascular Antagonism of Insulin and Epinephrin.—Csépai and Weiss found that under certain conditions insulin inhibited the blood pressure reaction to epinephrin. This is due to the changes of the blood sugar level, not to the insulin itself.

Basal Metabolism and Epinephrin Reaction in Exophthalmic Goiter.—Csépai and Schill found a certain parallelism between the epinephrin reaction and the basal metabolism during the course of exophthalmic goiter.

Influence of Blood Reaction and Blood Sugar on the Epinephrin Reaction.—Csépai, Holló and Weiss found that alkaline shifting of the blood reaction and hyperglycemia increased the blood pressure response to epinephrin.

Phosphates and Epinephrin Reaction in Man.—Weiss injected intravenously 100 c.c. of a 10 per cent. solution of primary and secondary phosphate in diabetics. The injection caused a lowering of the epinephrin reaction—probably indirectly, by lowering the blood sugar.

Blood Pressure in Test Diuresis.—Schill and Patai observed a lowering of the blood pressure in patients subjected to the diuresis test with 1,500 c.c. of tea. The action lasted sometimes for several days. They recommend it in hypertension.

Residual Nitrogen After Intravenous Injection of Urea.—Schill and Kunze injected 10-15 c.c. of a 100 per cent. solution of urea intravenously in various patients. The residual nitrogen in the blood never rose to the expected height, nor was the urea eliminated in a short time. They conclude that it must have been retained in the tissues.

Enhancement of Oxidation of Diacetic Acid by Carbohydrates.—Förster and Ernst investigated the inhibiting action of various substances on the enhancing action of glucose on the oxidation of diacetic acid. Glycocoll, tyrosin, histidin, and asparaginic, glutaminic and uric acid inhibited oxidation—probably by forming a compound with the glucose. Alanin leucin, creatin, glucosamin, nucleic, acetic, oxalic acid, urea and glycerol had no effect on it.

Resorption from Subcutaneous Tissue.—Weiss and Kolta found that sodium iodid is resorbed with different speed from various parts of the body, when injected subcutaneously.

Action of Posterior Lobe of the Pituitary.—Weiss and Telbisz observed an accelerated resorption of subcutaneously injected sodium iodid after injection of an extract from the posterior lobe of the pituitary. The action was identical in healthy subjects and in diabetes insipidus.

Wiener klinische Wochenschrift, Vienna

38: 663-694 (June 11) 1925

*Kidney Function Test. F. Pregl.—p. 663.
*Pregl's Kidney Function Test. H. Haberer.—p. 665.
*Children of Mothers Irradiated with Roentgen Rays. Zappert.—p. 669.
*Meinicke's Cholesterol-Free Alcoholic Extracts. Epstein and Paul.—p. 673.
Cesarean Section in a Case of Hematoma of Vulva and Vagina. J. Sahler.—p. 675.
Conservative Surgery in "Leukosarcoma" of the Choroid. F. Schubert.—p. 677.
Treatment of Chronic Gastritis. P. Saxl.—p. 678.
Hunger and Underfeeding in Pathology and Therapy. H. Elias. Supplement.—pp. 1-14.

Kidney Function Test.—Pregl determines the specific gravity of the urine obtained by catheterization of the ureters. Using Haeser's coefficient he estimates the amount of solid substances excreted, and compares it with the weight of ash. The diseased kidney may excrete the same volume of water, but less solid material. A predominance of mineral substances (ash) over the organic also speaks for a lower function of the kidney. The method is useful in extreme oliguria.

Pregl's Kidney Function Test.—Haberer considers the Pregl test described above superior to the indigocarmin test.

Children of Mothers Irradiated with Roentgen Rays.—Zappert shows that only less than one half of the children were normal of the mothers who had been treated with roentgen rays. A large proportion of the children were microcephalic. Microphthalmia occurred several times. His statements are based on twenty-one cases from the literature and his own experience.

Meinicke's Cholesterol-Free Alcoholic Extracts.—Epstein and Paul found no cholesterol and no protein in the optimal extract for the Meinicke reaction. The antigen contained, however, a mixture of phosphatids, especially a diaminomonophosphatid, creatinin and organic acids.

38: 695-720 (June 18) 1925

Medicolegal Psychiatry. H. Herschmann.—p. 695. Cont'd.
*Conservative Surgery of Myomas. B. Aschner.—p. 699.
Modified Meinicke Reaction in Cerebrospinal Fluid. R. Untersteiner.—p. 702.
Double Perforation of Aneurysm. F. Windholz.—p. 704.
*The Duodenal Muscle Syndrome. Bársony and Hortobágyi.—p. 706.
*Prevention of Flatfoot in Children. A. Saxl.—p. 707.
Drug Addiction. E. Herzig.—p. 708.
Insulin Treatment. H. Elias.—p. 710.
Pathogenesis and Systematization of Hemorrhagic Diseases. H. Lehndorff. Supplement.—pp. 1-14.

Conservative Surgery of Myomas.—Aschner reiterates the importance of menstruation for the well-being of the woman. Consequently, he is opposed both to roentgen castration and to the extirpation of the uterus, even if the ovaries remain. He found that exact peritonealization after enucleation and resection of the myomas prevents postoperative ileus. Catgut is preferable to silk. A typical menorrhagia (metropathia hemorrhagica) should be treated only generally. The metabolism, digestion (atony of the stomach and constipation) should be taken care of, and venesection should be used freely.

The Duodenal Muscle Syndrome.—Bársony and Hortobágyi found in their experiments on dogs that Bayliss and Starling's "law of the intestine" can be applied also to the duodenum. The stimulation of peristalsis of the stomach, and depression distad from the point of irritation, which are characteristic for duodenal ulcers, are caused by the nerves of the stomach and duodenum, and are independent of the external nerves

Prevention of Flatfoot in Children.—Saxl gives suggestions for the type of shoes children should wear. Many shoes force the foot into pronation, which leads to the further development of the deformity

38: 721-748 (June 25) 1925

Sugar Tolerance in Diabetes F Depisch —p 721
Some Medicolegal Questions Herschmann —p 723 Conc'n
Different Types of Stasis H. Elias and A Feller – p 725
*Fatal Hemorrhage Due to Periarteritis Nodosa C Sternberg—p 729
Chlamydozoa Strongyloplasma B Lipschutz —p 731
The Constitution in Infants R Lederer —p 733
Impediments of Speech L. Fröschels p 734
Vegetative Nervous System and the Digestive Organs L Hess Supplement, pp 1-14

38: 749 776 (July 2) 1925

Reflex Anuria. H Rubritius —p 749
Cesarean Section After Death Peters —p 753
Insulin and Adipositas W. Falta —p 757
Paravertebral Anesthesia in Angina Pectoris F Mandl —p 759
Measuring Decolorations of the Skin L Freund and F Novak —p 760
Pituitary Tumors. Domanig —p 762
Silica in Therapeutics F Luithlen —p 762
Treatment of Diabetes in Children R Wagner Supplement —pp 1 15.

Fatal Pulmonary Hemorrhage Due to Periarteritis Nodosa.—A man, 23 years of age, was admitted to the hospital on account of abdominal cramps and constipation. He suddenly expectorated bloody sputum, and died a few days later during a profuse pulmonary hemorrhage Sternberg found that the left pleural cavity contained a large amount of blood and the left lower lobe was dark red, did not contain any air, and was studded with hemorrhagic infarcts But the cause of the sudden fatal hemorrhage could not be detected The histologic examination revealed that all the medium-sized and small branches of the pulmonary artery in the left lower lobe were diseased; the media was necrotic, the adventitia contained many leukocytic infiltrates, sometimes combined with endarteritis. These processes had resulted in the formation of many aneurysms and ruptures of arteries The etiology of the disease is not known; all other organs appeared to be normal

Zeitschrift für Krebsforschung, Berlin

22: 305 378 (June 16) 1925

A Teratoma in a Rooster P Cohrs —p 305
The Frequency of Cancer S Peller —p 317
Cholesterol in Experimental Mouse Cancers W Eber et al —p. 359.
Vital Staining of Experimental Tumors D Engel —p 365

Zentralblatt für Chirurgie, Leipzig

52: 1409 1456 (June 27) 1925

*Bleeding Time in Gastric Cancer. Harttung —p 1410
When to Operate in Osteomyelitis A Hedri —p 1412
*Operative Treatment of Epilepsy P. Babitzky —p 1416
Research on the "Wound Stream" P Herzen and L Nissnjewitsch. —p 1420
Autolysate Treatment After Operation for Cancer Pohrt —p 1425
Improved Infusion Syringe Natannsen —p 1427

Bleeding Time in Differential Diagnosis of Gastric Cancer and Ulcer.—Harttung's experience seems to demonstrate that the bleeding time is within normal range with cancer, while it is abnormally long—seven or eight minutes or more—in cases of gastric ulcer This alone turned the scale in some dubious cases of cancer, confirmed by the operation on finding the bleeding time normal He states further that reinjection of 10 c.c. of own blood in the gastric ulcer cases always shortened the abnormally long bleeding time in the ulcer cases, as the bleeding time was thus reduced to normal. This arrested the hemorrhagic tendency of the ulcers in two cases, by the third or fourth day no further blood could be found in the stools. He does not attempt to explain the phenomenon.

Operative Treatment of Epilepsy.—Babitzky insists on the possible advantages of supplementary cervical sympathectomy with a decompressive operation on the skull in cases of epilepsy not amenable to a causal therapy.

Zentralblatt für Gynäkologie, Leipzig

49: 1297 1344 (June 13) 1925

*Medicinal Painless Delivery J. Eversmann —p 1297.
*Serologic Tests in Retroplacental Blood. R. Knebel —p 1302.
*Sedimentation Test and Congenital Syphilis H O. Neumann —p 1312
Thirst Fever in the New-Born. E Poeck —p. 1325.
Air Embolism After Manual Separation of the Placenta; Fatal Case H Schlossman.—p 1333.
Circular Avulsion of External Os from Metreurynter Pressure. O. Wiemann —p 1335
Laceration of Vagina in Delivery W Barfurth.—p. 1336
"Economy in Catgut" M Blumberg —p 1337.

Painless Delivery.—Eversmann extols the advantages of S Stein's method of small doses of pituitary extract when it is deemed advisable to accelerate delivery. This method is not "painless," but the shortening of the period of labor pains amounts practically to almost the same. He extols further the advantages of the Baer procedure.

Parallel Serologic Tests of the Retroplacental Blood.—Knebel obtained a positive response in 1.87 per cent. of 2,527 married parturients tested at Essen for syphilis.

Sedimentation Test in Umbilical Vein Blood.—Neumann's 450 tests failed to show any characteristic modification of the settling of the erythrocytes in congenital syphilis.

49: 1409-1456 (June 27) 1925

*Presumptive Evidence in Paternity Test L Nürnberger.—p 1409.
Predetermination of Sex F Kirstein —p 1431
Relations Between General Paralysis and Generation Phenomena. G Susstrunk —p 1436
"Injury of Spinal Cord from Intraspinal Anesthesia" Gross —p 1441.
Paratyphoid Infection of Hematocele from Tubal Pregnancy. G H Schneider —p 1443

Presumptive Evidence in Paternity Research Cases.—Nurnberger discusses the probabilities afforded by the duration of the pregnancy (about 234 days), the inheritance of special types of finger prints (double loops), blood grouping, the swirl of the hair growth, etc.

Zentralblatt für innere Medizin, Leipzig

46: 453 476 (June 13) 1925

*Experiments on Decapsulation of Kidneys. Hülse and Litzner —p 454

Experiments on Decapsulation of Kidneys.—Hulse and Litzner's experiments showed that decapsulation and squeezing of a kidney causes an increased blood flow through the organ, even if its blood vessels had been abnormally contracted The secretion of urine is impaired quantitatively and qualitatively (sodium chlorid and urea). They explain the beneficial effect of the intervention by its reflex reduction of the contraction of the arteries of the kidneys.

46: 477 492 (June 20) 1925

Determination of the Blood Volume in Surgery S Perpina and R. D Sarasola —p 477

46: 593 624 (June 27) 1925

The Parotid Gland in the System of Endocrine Secretion. H Goldbladt —p 594

46: 625 640 (July 4) 1925

*Oxalic Acid Poisoning G D. Koehler —p 625

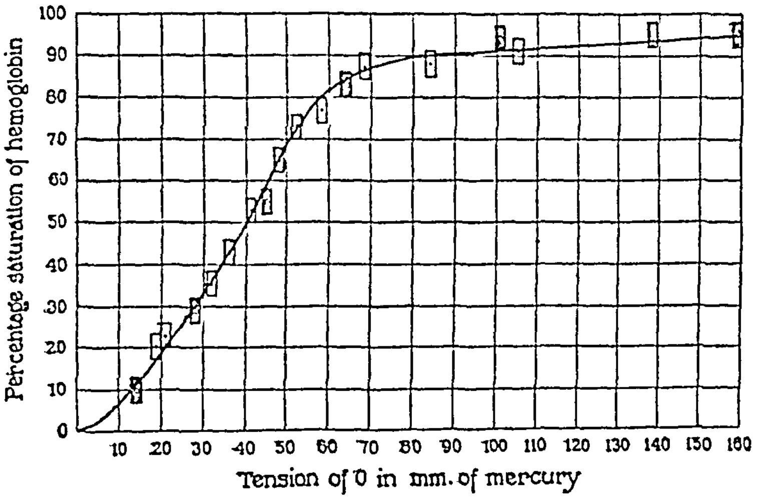
46: 641 672 (July 11) 1925

Direct Blood Transfusions; 150 Cases. A Beck —p 642.

Oxalic Acid Poisoning.—The four cases which were observed by Koehler showed a very varied symptomatology. The symptoms may be as follows in different individuals: (1) isolated corrosions, (2) corrosions and anuria, low blood pressure, increase of nonprotein nitrogen and calcium in the blood; (3) hemorrhagic gastro-enteritis with low blood pressure without kidney symptoms, or (4) violent central disturbances (amaurosis, convulsions, loss of consciousness, acute amentia). His patients had taken the drug with suicidal intent, but all recovered except one.

through the lungs is conditioned, first, by the percentage of hemoglobin present, and, secondly, by the capacity of hemoglobin to obtain and fix its full quota in the small fraction of time in which the blood in the pulmonary capillaries is exposed to the particular partial pressure of oxygen present in the alveoli. This quota at sea level is 96 per cent. of 18.5 volumes. At a barometric pressure of one third of one atmosphere, corresponding to an altitude of 28,000 feet, it is about per cent. of the 18.5 c.c., a total of 13 c.c. of oxygen hundred cubic centimeters of blood.

The diffusion rate of oxygen through the walls of the normal alveoli and the pulmonary capillaries is adequate through a wide range of oxygen pressures. The blood is in the pulmonary capillaries only about one second, yet the oxygen diffuses into the venous blood fast enough to oxygenate it to arterial blood in the first two fifths of this time. There is variation among individuals, but a 60 per cent. margin of safety in diffusion time exists; in fact, 80 per cent. is indicated by the observations on athletes by Henderson and Haggard.[9] This margin alone is adequate to insure the complete oxygenation of venous blood should it enter the lungs entirely reduced instead of 75 per cent. oxygenated as in the normal. In pulmonary inflammations, on the other hand, especially when associated with edema, the rate of absorption of oxygen may be greatly retarded.



Dissociation curve of dog's blood at 40 mm. tension of carbon dioxid: ordinates, percentage of saturation of hemoglobin; abscissas, tension of oxygen in millimeters of mercury. The plain rectangles denote dissociation determinations of Barcroft and Camis for blood in vitro. The cross-hatched rectangles denote the determinations of Greene and Greene for arterial blood against partial pressure of alveolar oxygen in vivo. The area drawn around the points is the experimental error in each case.

NORMAL ALVEOLAR OXYGEN PRESSURES

The rate of absorption of oxygen from the alveoli is controlled by the laws governing the diffusion of gases; hence it is conditioned solely by the difference in oxygen pressure and by the permeability of the membrane. The pressure represents a fluctuating equilibrium between three factors: (1) the absorption of oxygen from the alveoli, (2) the diluting effect of added carbon dioxid, and (3) the rate of renewal of the alveolar air determined by the volume and depth of respiration. Variation in the mechanical act of respiration influences all these factors, since a greater respiratory volume per minute produces a more rapid renewal of alveolar air, and, therefore, keeps the oxygen supply at a relatively higher partial pressure and reduces the dilution by carbon dioxid. The greater diffusion of carbon dioxid from the blood through the alveolar walls reduces its content in the blood. This, in turn, permits a more complete saturation of the hemoglobin at any given pressure of oxygen. The respiratory compensations to any and all forms of stress from oxygen deficiency must be analyzed through these factors of physiologic readjustment.

THE PHYSIOLOGY OF HIGH ALVEOLAR OXYGEN PRESSURES

The arterial blood leaving the lungs has an average saturation of 96; i. e., from 94 to 97 per cent. Let me here anticipate and answer the fallacious assumption that the physiologic effect of enrichment of the air is proportional to the increase in the content of oxygen breathed. Under normal conditions if the amount of oxygen in the air breathed is raised from 21 to 60 per cent., the increase can influence the volume of arterial oxygen only in two small items: (1) The oxygen in simple solution will be trebled, i. e., raised from 0.36 to 1.08 c.c. per hundred cubic centimeters of blood, an increase of only 4 per cent. in total oxygen; (2) the margin of unsaturated hemoglobin may be satisfied by at most a further average increase of 4 per cent., or 0.8 c.c. per hundred cubic centimeters of blood. The total advantage is the sum of these two, an increase of 1.52 c.c. This small increase of oxygen is of little value to the normal man in whom the venous oxygen reserve is already from 13 to 15 c.c.; i. e., ten times greater.

In fact, enriched oxygen if breathed long enough may do positive harm to the lung tissue by inducing pulmonary inflammation. In caisson work, deep sea diving, etc., in which the partial pressure of oxygen is raised by the method, increasing the total atmospheric pressure, the same physiologic laws apply as when oxygen is added to normal airs.

The current belief that the accelerated chemical reactions which occur in airs of high oxygen content occur also in the human body on breathing rich oxygen mixtures has been tested in the recent experiments of Meyer[10] and of Karsner.[11] Meyer showed that canaries in one atmosphere of pure oxygen do not deviate in any detectable measure from normal birds. It is well known that inflammation may be produced in the lungs by prolonged breathing of pure oxygen. Karsner has exhaustively studied many organs. He finds that little or no trace of injury occurs in any organ except the lungs. Breathing an excess of oxygen of more than 60 per cent. for hours induces fibrinous pneumonia. Novy[12] finds that 60 per cent. oxygen inhibits growth of hemoflagellates, and Cleveland kills ciliate infusorian fauna in the alimentary tracts of insects and of frogs by one atmosphere or more of oxygen. In man, the excess of oxygen absorbed by the plasma of pulmonary blood under higher oxygen pressures is rapidly depleted to the pressure level of hemoglobin dissociation, and, hence, does not benefit the general tissues.

There is, therefore, at present no basis for assuming that an excess of atmospheric oxygen has any advantage to the normal body, and amounts above 60 per cent. by volume may injure lung tissue.

THE PHYSIOLOGY OF LOW ALVEOLAR OXYGEN PRESSURES

Conversely, if the oxygen content of the air is progessively reduced so that the alveolar partial pressure becomes lower and lower, then the oxygen absorbed by the alveolar blood is also reduced, not, however, in a proportionate or linear manner but according to the curve of hemoglobin dissociation. At the partial pressure of oxygen in air of 159 mm., the degree of saturation of the arterial blood is 96 per cent.; at a partial pressure of 100 mm. of oxygen, 90 per cent.; at 75 mm., about 88 per cent.; at 50 mm., about 66 per cent., and at 30 mm., about 33 per cent. The minimal oxygen pressure by which dogs and normal men may still receive the basal metabolic oxygen requirement is 30 mm. Any further reduction leads to prompt death from oxygen deprivation.

---

[9] Henderson, Yandell; and Haggard, H. W.: The Maximum of Human Power and Its Fuel, Am. J. Physiol. **72**: 264, 1925.

[10] Meyer, A. L.: The Effect on the Metabolism of Breathing Pure Oxygen at a Pressure of One Atmosphere, Am. J. Physiol. **65**: 148 (June) 1923.

[11] Karsner, H. T.: The Pathological Effects of Atmospheres Rich in Oxygen, J. Exper. Med. **23**: 149 (Feb.) 1916.

[12] F. G. Novy and Students: A series of articles on Microbic Respiration, J. Infect. Dis. **36**: 109, 168 and 245, 1925.

THE ANOXEMIAL CRISIS

Dr. Gilbert and I[13] have presented the compensating reactions of a progressive deprivation of oxygen for men and dogs in papers published in 1921 and 1922. Our researches offer numerous data supplementing and explaining the known reactions of man, especially in the acutely critical postcrisis of these tests. The compensating events in progressive experimental anoxemia which have their counterpart in the anoxemias of disease are summarized as follows:

1. The volume of air respired is augmented as anoxemia progresses by an increased rate and increased amplitude of respiration, which together often increase the respiratory volume fivefold. These anoxemial reactions tend to maintain the partial pressure of alveolar oxygen at its highest possible approach to the oxygen level of the reduced intake. It rids the body of the excess of carbon dioxid in a corresponding degree.
2. The diffusion rate of oxygen from the alveoli into the pulmonary capillaries proceeds according to the law of relative pressures. It is quite adequate to insure an arterial saturation of from 90 to 95 per cent. of the theoretical capacity, even at the lowest critical level, about 6 c.c. of oxygen per hundred cubic centimeters of blood.
3. The limit of respiratory compensation is reached quite suddenly, and earlier than the circulatory limit.
4. In the postcrisis, respirations decrease in volume, rapidly fall off in rate, and suddenly cease. Respiratory revival readily occurs on artificial respiration with normal air.
5. The volume of blood per minute that passes the alveoli in progressive anoxemia is slowly but progressively augmented till the moment of the respiratory crisis, after which it sharply declines.
6. The heart slows by vagospasm, a reaction that is proved by sectioning the vagi at the height of the slowing. When the vagi are cut the heart rate jumps to even a higher rate than during the precrisis acceleration. We know that vagospasm occurs in normal man, and we assume that it is also true for the asphyxial diseases. After the vagal mechanism is paralyzed by prolonged anoxemia, or by toxins, the reaction is of course lost.

The reaction complex designated as the crisis occurs in normal man when the inspired air contains an average of 6 per cent. by volume of oxygen or less. In dogs, which have a higher capacity for resistance than men, the oxygen respired may be reduced to 3 or even 2 per cent. by volume before death. The crises of respiration are due to the sensitivity of the medullary centers to the effects of an inadequate oxygen supply. The heart itself is very resistant to asphyxiation. Normal beats continue for three minutes or so after respirations stop. These beats, though gradually decreasing in mechanical efficiency, are of sufficient energy to maintain the circulation for a period of about two minutes. However, continued cardiac activity is indicated by a normal electrocardiogram for five minutes or more after respirations cease.

THE SIGNIFICANCE AND DANGER OF THE ASPHYXIAL POSTCRISIS EVENTS

Since the anoxemial crisis marks the crest of physiologic compensations, the events of the postcrisis are the signs of rapid decline of functional reactions because of acute oxygen deficiency. With the cessation of respiration there is, of course, no further intake of oxygen, although the circulation of the blood maintains an oxygen distribution within the body the few remaining moments before absolute tissue asphyxiation.

The strain of oxygen deficit is greatest on the nervous system. Unconsciousness occurs at the respiratory crisis, sometimes only at the onset of vagospasm; i. e., with the slowing of the heart and precipitous fall of blood pressure. A patient whom Gilbert and I examined passed through this stage, from that of adequate heart rate, strong blood pressure and alert consciousness, to unconsciousness and collapse with respiratory failure in the brief interval of ten seconds. His heart rate, plotted beat by beat, fell from 136 per minute to 44 per minute in eighteen seconds.

THE REMEDY FOR ANOXEMIA—AN ARTIFICIAL OXYGEN SUPPLY

Experience has long since taught that the remedy for the anoxemial crisis is an immediate and liberal supply of oxygen, either by artificial or by natural means. The young man whose heart rates we just quoted recovered consciousness in forty seconds when given room air by artificial respiration. A supply of oxygen has been the answer to the problem of maintaining normal activity in the extreme altitudes attained in aviation. A man can live in the most obnoxious gases of mines or war trenches if he has an artificial oxygen supply.

The reactions on reoxygenation are instantaneous and outstanding. The reflexes of the vagus disappear in from eight to ten seconds. Consciousness returns with equal facility. Motor coordinations and the finer sensory reactions return more slowly. The peripheral vascular spasms are almost immediately relaxed, and cardiac acceleration is prompt and profound. The evidence of asphyxial stimulation of the basic motor centers in the spinal cord and brain stem rapidly disappear.

A factor of slower reaction through the slower processes of hormone secretion under profound asphyxial spasm occurs in the suprarenal glands, as demonstrated by Cannon and Hoskins.[14] A patient in asphyxiation and displaying the motor spasms therefrom will relax immediately on reoxygenation, a state desired in operative technic and of bearing in nitrous oxid and other types of anesthesia.

OXYGEN WANT IN ANESTHESIA

The practical bearing of my theme is illustrated by the conditions that occur in the anoxemias of anesthesia and of disease.

---

[13] Greene, C. W., and Gilbert, N. C.: Studies on the Responses of the Circulation to Low Oxygen Tension, VI, The Cause of the Changes Observed in the Heart During Extreme Anoxemia, Am. J. Physiol. **60**: 155-192 (March) 1922.

[14] Cannon, W. B., and Hoskins, R. G.: The Effect of Asphyxia, Hyperpnea and Sensory Stimulation on Adrenal Secretion, Am. J. Physiol. **29**: 274, 1911-1912.

Investigations of anoxemial reactions have given more certain knowledge of the minimum oxygen requirements of man, determinations applicable in both anesthesia and disease. It has been known for more than fifty years that prolonged nitrous oxid anesthesia can be maintained only by a supplementary oxygen supply. The theory that oxygen can be liberated from the nitrous oxid molecule and thus become available for bodily uses has long been disproved and abandoned.

Andrews,[15] 1869, first added oxygen to nitrous oxid in the production of prolonged anesthesia; Kemp,[16] in 1897, determined the percentage of oxygen in nitrous oxid mixtures that induce anesthesia in animals. He also analyzed the gases in the arterial blood. Data [17] from our laboratories present both the respiratory and the blood gas percentages in numerous animals under prolonged nitrous oxid-oxygen anesthesia. Our data were obtained by the newer and more accurate microchemical methods of blood gas analysis. The data demonstrate that the variations in the degree of nitrous oxid anesthesia are obtained, not so much by varying the concentration of nitrous oxid in the gas breathed as by varying the coincident percentage of oxygen. Animals may be alternated between deep and light anesthesia by varying the percentage of oxygen of the nitrous oxid-oxygen mixture inhaled.

All these data emphasize the fact that the anesthesia produced by nitrous oxid is, in fact, very closely related to the unconsciousness produced by simple anoxemia. There is little difference between diluting the oxygen to the asphyxial stage by the very soluble nitrous oxid and diluting it by the sparingly soluble nitrogen. The solubility of the former in the body tissues apparently produces a wider range of control, and is a more flexible and therefore safer method for clinical use. Parallel determinations of the amount of gases present in the blood at the incipient stages of unconsciousness from nitrogen asphyxiation and nitrous oxid anesthesia show a surprising correspondence. The unconsciousness and relaxation are, in fact, dependent on the degree of deprivation of oxygen to the nervous system.

Oxygen deficiency undoubtedly is an important factor in the production and maintenance of anesthesia by ethylene or ether. Physiologic and medical laboratories have for some time suspected that current practices in inducing ether anesthesia produce critical reductions in available oxygen to the patient.

The analyses of Kruse [18] in 1922-1923 show that the composition of the air under the mask in surgical anesthesias may contain as little as 6 per cent. of oxygen and may have a variation of between 3.6 and 6.58 per cent. of ether vapor. It is known that the amount of ether in the blood in deep surgical anesthesias cannot safely pass 36 per cent. by volume, and averages 20 to 25 per cent. by volume. The arterial oxygen varies from 16 to 18 per cent. by volume (dogs) to as low as 6 per cent. by volume in very deep anesthesia. These figures at once emphasize the danger in the reduction of oxygen during ether anesthesias.

In anesthesias induced by combinations of narcotics, analgesics and localized applications, the relations of the oxygen supply are, as a rule, not very acutely changed, and then only through secondary interference with vascular or respiratory compensations.

OXYGEN AVAILABILITY IN DISEASE

The importance of an extra supply of oxygen in certain diseases has been discussed by clinicians in many valuable papers. One of the comprehensive papers of this group was presented before the Section on Pharmacology and Therapeutics at St. Louis in 1922 by Dr. Barach.[19]

The effects of oxygen want must be especially considered in the diseases that decrease the volume capacity of the lungs, as in pneumonia; that interfere with the normal structure of the pulmonary epithelium, as in pulmonary edema and gassing; that reduce the efficiency of the heart, whether from vascular changes or myocardial insufficiency, or that reduce the oxygen capacity of the blood by a dearth of respiratory pigment, as in anemia. I shall briefly review the facts that seem to clarify the understanding of the basic physiologic principles involved in the supply of extra oxygen in these diseases. I shall omit questions of the practical application except as they involve the physiology of oxygen therapy.

In pneumonia, for example, it has been shown that there is an actual diminution in the vascular capacity of the lungs. A decrease in volume of the blood vessels has been shown, at least in the areas of gray hepatization. Apparently an adequate circulation is maintained in the red areas. Neither red nor gray areas can receive alveolar air. We may, therefore, independent of all other considerations, look on consolidation as reducing the total pulmonary vascular capacity by only a very slight degree, and at the same time reducing the alveolar capacity by a decidedly large degree. If we assume the normal minute-volume flow of pulmonary blood to be 100 per cent., and the alveolar normal capacity also 100 per cent., then at a stage of the disease in which there is profound red hepatization with reduction in alveolar air capacity, for example, to 60 per cent. of the normal, the pulmonary blood volume will be *practically normal but the aeration only* 60 per cent. efficient. Emphasis must be placed on the percentage of nonaerated arterial blood entering the systemic circulation. The contributory facts are actually somewhat more complicated; but, broadly speaking, such mixed blood has an oxygen content not very different from 60 per cent. of the total oxygen capacity. It is readily seen that any other degree of pulmonary consolidation will reduce the oxygen content of the mixed arterial blood in a fairly direct proportion to the interference with the absorbing surface. For example, a two-thirds reduction in alveolar efficiency will provide only a one-third oxygen saturation of the blood, which is the critical minimal percentage that maintains life. With an extreme degree of anoxemia there are always uncertain and irrational cerebral reactions and unconsciousness, and these progress rapidly until death. The effects on the nervous system are not different in disease. When available oxygen is inadequate, there is delirium, unconsciousness and coma from this source. However, in disease, at the time the oxygen supply approaches the minimal tissue requirement, the tissue strain is already augmented by toxic products of the infection, and the breaking point is at a correspondingly higher oxygen level.

---

[15] Andrews, E.: J. Brit. Dent. Soc. **22**, 1869.
Brit. M. J. **2**: 1480, 1897.
[16] Kemp, G. T.: Nitrous Oxide Anesthesia, The Respiratory Gas Per-
[17] Greene, C. W., and Currey, H. M.: Arch. Int. Med. **35**:
centages During Nitrous Oxid Anesthesia in Dogs, The Distribution of
371 (March) 1925. Greene, C. W., and Assistants: Gas Anesthesia,
Nitrous Oxid and Oxygen in the Blood of Dogs During
ibid. **35**: 379 (March) 1925.
J. Biol.
[18] Kruse, T. K.: Studies in Narcosis, I, Ether Analysis, Determination of
Chem. **56**: 127-137 (May) 1923; II, A Method for the **56**: 139-155
the Respiratory Exchange During Ether Narcosis, ibid. Observations in
(May) 1925; III, Certain Experimental and Clinical Analgesia
Ether Anesthesia (with Adolphus Koenig), Anesthesia and
2: 179-181, 1923.

[19] Barach, A. L.: The Therapeutic Use of Oxygen, J. A. M. A. **79**: 693-699 (Aug. 26) 1922.

This discussion has not specifically considered the percentage of oxygen in the venous blood returning to the lungs. Barach's data show an average venous unsaturation of 57 per cent. in a group of fatal cases, but unsaturation may be as extreme as 87 per cent. The prolonged strain of oxygen want at the critical level leaves the patient without reserve to meet any crisis.

The rationale of oxygen therapy in pneumonia and similar diseases may be thus summarized:

1. In pneumonias there is little if any immediate reduction in hemoglobin; in fact, concentration of the blood may increase the hemoglobin considerably above the normal. If oxygen is administered so that its partial pressure in the active alveoli is raised to a higher level, say to 60 per cent. of oxygen, then by so much will the absorption of oxygen be facilitated.

2. The absorption of an increased quantity of oxygen is favored by two factors—the greater partial pressure and faster rate of diffusion through the alveolar walls, and the greater volume fixation by the hemoglobin in the available time of the circulation. Normally, oxygen diffusion and fixation is completed in from two fifths to three fifths of the total time the blood is in the pulmonary capillaries. But, normal venous blood is already from 50 to 70 per cent. saturated with oxygen, requiring only about 30 per cent. additional to raise the content to the arterial level. Venous blood in the pneumonic crisis returns to the lungs all but exhausted of its oxygen. That proportion of the blood aerated through good alveoli will be oxygenated to from 98 to 99 per cent. saturated in an enriched atmosphere.

3. By calculation it is apparent that the total advantage of enriched air to the fraction of blood through normal alveoli is only from 8 to 10 per cent., an average in aeration of 5 per cent. by volume or more for the total blood. In Stadie's case this was enough to remove the obvious signs of cyanosis, to quiet the excessive respiratory and circulatory reactions of anoxemia expressed in reflex and automatic reactions through the medulla, and to clear the cerebral confusion. Oxygen is, of course, of no avail in pulmonary consolidation when edema has gone beyond the stage at which total oxygen absorption is less than the pathologic metabolic needs.

The administration of oxygen in diseases characterized by oxygen deficit is both logical and profitable. The difficulty has been to devise methods of administering oxygen that overcome both the physical and the medical difficulties. The patient must breathe oxygen of controlled higher percentages than in normal air. He objects to the face mask and similar devices used in emergency administration. Guedel's [20] head and face tent is the best of these bedside devices. It is most desirable that the patient be surrounded by an atmosphere of enriched oxygen. That method has been met by the oxygen chamber method of the Rockefeller Hospital, as described by Stadie [1] in 1919. The complete plant consists of a closed room of sufficient capacity for the patient and attendants, with automatic air circulation and ventilating system, and air cooler, carbon dioxid absorbers, automatic oxygen analyzers, and automatic oxygen maintenance. Stadie designed the station to maintain from 40 to 60 per cent. of oxygen in the air of the chamber. It is convenient and sane, and it conserves energy, time and expense of maintenance, and is a very ingenious and workable outfit.

Dr. Stadie has described the treatment of a series of patients through this chamber, patients with pneumonia with an extremely grave prognosis, and in the stage of pronounced cyanosis with respiratory and circulatory upset. Fortunately, he has also used certain patients with chronic pulmonary lesions with superimposed acute pneumonias. A study of Stadie's protocols, graphs and figures reveals a remarkably close correspondence between the blood oxygen content and respiratory and circulatory stress, as compared with similar responses to like oxygen want in normal animals and man.

A cyanosis expressed by an arterial oxygen deficit of from 20 to 37 per cent. in patients before entering the chamber was quickly reduced to an arterial oxygen deficit of only from 5 to 10 per cent., with reappearance of scarlet color.

Stadie's Patient 7 was pulseless, deeply cyanotic, with breathing gasping, difficult and spasmodic, an apex beat of 160 but not palpable pulse, and with extreme moist râles all over both sides. The patient was in coma when put into the oxygen chamber at 50 per cent. oxygen. In a short time the cyanosis disappeared; respirations became more regular and rapid, increasing to 36, and soon had lost the gasping quality. In a few hours the pulse had returned to the radial artery and the rate had fallen to 100. The temperature also fell, and the patient became rational.

All these changes are duplicates in kind of those observed in experimental animals which pass from the postcrisis stage of anoxemia by breathing adequate oxygen. The recovery of Stadie's patient seems and is miraculous; but it is the miracle of medical science clearly demonstrated by anoxemic animals.

The literature contains only unsatisfactory data to determine the extent to which oxygen absorption in the lungs is retarded by simple imflammation and by edema. It is obvious that the consolidation in lobar pneumonia blocks oxygen absorption, since oxygen is excluded from the alveoli. Kline and Winternitz have published evidence to show also a reduction of volume of the blood through consolidated areas, especially gray areas. Red areas, through which blood is flowing but from which no oxygen is absorbed, decrease the percentage of total arterial partial unsaturation. The measured arterial oxygen in Stadie's pneumonia cases, and the corresponding cases of Harrop, represent human data on this relation. Apparently the spread of areas of moist râles, rather than consolidation alone, contributes to the arterial unsaturation in Stadie's cases. Similar results are apparent in the measurements of arterial oxygen following edemas from war gassing. In all these types, the stress of the anoxemial crisis is reduced by enrichment of the inspired air.

The severity of the anoxemial crisis in disease is revealed by a comparison of the oxygen fixation curves of these patients as against the basal metabolic needs of the body. The data are revealed by coincident venous and arterial oxygen determinations. In view of the experimental background, I, for one, pay honor to the epoch making clinical papers by Stadie, by Harrop and by Lundsgaard. All these papers were immediately made possible by the development of the Van Slyke blood gas micro-analyzer.

THE OXYGEN PROBLEM IN CARDIAC DEFICITS

Circulatory deficits of various types—regurgitations, stenosis, fibrillation, and the like—all tend to reduce the minute-volume of the circulating blood. In themselves they have nothing directly to do with pulmonary deficiency. Oxygen is present in the alveolar air in adequate concentration. It diffuses through the alveolar walls to the usual or normal degree of arterial saturation. But the minute-volume of the circulation is so reduced that the total oxygen carried to the tissues is inadequate. Those in the main are not cases for supplying an enriched air. All that can be accomplished thereby is the slight augmentation of arterial saturation already approximately normal in these cases. In the stage of decompensation, on the other hand, as shown experimentally by Drinker, the pulmonary congestion and edema may lead to actual reduction of respiratory volume. Enriched oxygen should give temporary relief.

---

[20] Guedel, A. E.: Oxygen Therapy in Pneumonia, J. A. M. A. 84: 1490 (May 16) 1925.

ANEMIAS

The anemias are characterized by the reduction in the amount of the respiratory pigment. Such bloods are normally saturated with oxygen during passage through the lungs, but an inadequate total volume is absorbed to meet the metabolic needs of the body. As shown by Fahr, anemias are not cases for the administration of oxygen. The same is true for blood depleted by excessive hemorrhage. Life can be saved only by augmenting the minute-volume of the blood and by increasing the percentage of hemoglobin.

SUMMARY

1. Administration of oxygen has no advantage to the normal body.
2. Airs of more than 60 per cent. of oxygen may produce pulmonary inflammation by local action.
3. Oxygen administration has no physiologic clinical advantage in hemorrhage, anemia or other circulatory mechanical defects.
4. Oxygen enriched airs are of life saving value in all clinical cases of pulmonary obstruction, edemas or other deficiencies that retard the process of oxygen absorption or prevent the full saturation of the hemoglobin of the pulmonary blood.
5. Oxygen administration must be controlled by recognized physiologic methods, must be continual, and must not produce local pulmonary injury.
6. Oxygen administration cannot be successfully pursued except with clear understanding of the type of response to anoxemia and the recoveries on reoxygenation through the complex and interdependent reactions of the nervous system, the respiratory system, the circulatory system and the blood. For all these we have in present day methods and animal verification an accurate scientific basis of determination.

Standardization of Pollen Extracts.—The complement-fixing property of ragweed pollen extracts is due to a labile fraction and is one of the first properties of the extract to deteriorate; its rate of deterioration bears no definite relation to the rate of deterioration of the portion of the extract which causes shock. The complement-fixing property of ragweed pollen extract is a nonessential attribute so far as the value of the extract for treatment is concerned. Complement fixation as a means of standardization of ragweed pollen extracts should be applied only to extracts of stable antigenic nature, which, however, should be tested soon after extraction is completed. Complement fixation for standardization of ragweed pollen extracts which are not stable in antigenic properties is fraught with danger, because overdosage may result; for some extracts which are relatively unstable as regards their complement-fixing properties may lose the latter, while their ability to cause shock is relatively unaltered.—Armstrong, C., and Harrison, W. T.: *Pub. Health Rep.* 40:1472 (July 10) 1925.

TUBERCULIN

CHEMICAL COMPOSITION OF THE ACTIVE PRINCIPLE AND THE NATURE OF THE TUBERCULIN REACTION *

ESMOND R. LONG, Ph.D.
Associate Professor of Pathology, University of Chicago
AND
FLORENCE B. SEIBERT, Ph.D.
Instructor in Pathology, University of Chicago; Assistant in the Otho S. A. Sprague Memorial Institute
CHICAGO

One of the most impressive features of tuberculosis is the hypersensitiveness conferred on the infected man or animal. A familiar manifestation of this hypersensitive state is the inflammatory reaction of the tuberculous patient when tuberculin is injected into the skin. It must not be supposed, however, that this type of reaction is limited to the skin, or occurs only with those preparations commonly designated as tuberculins. To some degree all tissues are sensitized, and the living tubercle bacillus itself, like those extracts and other preparations called tuberculin, contains the peculiar substance to which the host is sensitive. Hence, every time the disease progresses within the body, bacilli escaping from an old focus in their spread lodge on sensitive soil, and are met with a typical tuberculin reaction.

It is no exaggeration to say that the histologic changes that characterize the morbid anatomy of tuberculosis are essentially the early or late manifestations of a series of tuberculin reactions, caused by a multiplying substance to which the host is hypersensitive. Moreover, directly or indirectly, the symptoms of the tuberculous patient may be referred to this series of tuberculin reactions. The manner in which such reactions favor absorption of poisons from the focus of disease, and hence produce symptoms, has been discussed in detail by Krause.[1]

THE NATURE OF THE TUBERCULIN REACTION

It is a striking fact that preparations of tuberculin, although exceedingly active with respect to the tuberculous animal, are quite without effect on the normal. Minute doses of the substance set up an acute inflammatory reaction of the type described below in the infected animal, man, cow or guinea-pig as the case may be, while doses a thousand times as large cause little or no change that can be recognized grossly or microscopically in the tissues of the normal animal. No explanation yet given for this striking difference in toxicity has met general acceptance. Some of the theories will be discussed below.

Although the explanation of the reaction is still unsettled, the tissue changes of the reaction are well understood in an objective way. There are two characteristic features, exudation and necrosis. The exudate that pours out consists of plasma and cells, and is associated with active hyperemia. The cells are chiefly large mononuclears, and when arranged in the characteristic architecture of the tubercle appear identical with the "epithelioid" cells. The nature of these cells which characterize the tubercle is being most actively investigated at the present time. By some, they are regarded as chiefly monocytes (the transitional cell of Ehrlich); by others, as a mixture of clasmatocytes, monocytes and lymphocyte derivatives, while others believe them to be derivatives of the capillary endothelium. For recent consideration of the relation of these different types of cell to the epithelioid cell of the tubercle the reader is referred to articles by Cunningham,[2] Maximow,[3] Foot,[4] Permar[5] and Lewis, Willis and Lewis.[6] A special significance of the rapid accumulation of such cells on reinfection of a tuberculous animal has been pointed out by Krause and Peters[7] and Krause and Willis,[8] who emphasize the mechanical localizing effect of the cellular reaction on the reinfecting bacilli.

---

* Read before the National Tuberculosis Association, Minneapolis, June 19, 1925.

* Work done under a grant from the Medical Research Committee of the National Tuberculosis Association.

[1] Krause, A. K.: The Constitutional Symptoms of Tuberculosis, New York M. J. 115:441 (April 19) 1922.

Less investigation has been devoted to the other characteristic effect of tuberculin, the necrosis of the sensitized cells. This has been regarded by a number of workers as the result of an interaction between sensitized tissue, i. e., the tissue of an infected animal, and the active principle of tuberculin, whereby the latter is rendered toxic. This theory has been upheld by Nicolle[9] and Wolff-Eisner,[10] particularly. It classifies the tuberculin reaction as a lysin-endotoxin reaction, and resembles the concepts of Friedberger, Vaughan and Abderhalden on the nature of anaphylaxis.

Some support has been given to this explanation by the work of Bail,[11] who found that while tuberculin alone was not toxic for the normal animal, it became so if the crushed tissue from a tuberculous animal was injected into the normal animal simultaneously with the tuberculin. Kraus, Loewenstein and Volk,[12] Selter,[13] Klopstock[14] and others could not confirm this.

Experiments in our laboratory also have failed to confirm this theory. Our results in this connection may be thus summarized: The testis of the tuberculous guinea-pig is highly sensitive to the action of tuberculin.[15] Profound degeneration or necrosis results when small amounts of tuberculin are injected. Were this necrosis the result of interaction between the sensitized testis cells and tuberculin, it might be expected that if tuberculin and the crushed testis of a tuberculous animal were intimately mixed for a few hours, one of two results might follow. The tuberculin might be activated by the sensitized tissue so as to become poisonous (compare the theory of Vaughan on the production of poisonous products of protein cleavage, and Friedberger's anaphylatoxin), and thereby act injuriously on normal tissue; or the tuberculin might be so bound by the sensitized tissue that the expressed fluid from such a mixture would fail to elicit a tuberculin reaction in a tuberculous guinea-pig.

As a matter of fact, neither of these possible results occurred. In several trials, the crushed testis of a tuberculous guinea-pig (0.8 c.c.) and old tuberculin (0.2 c.c.) were mixed and incubated for six hours with repeated shaking. The mass was then sedimented and the supernatant fluid injected into the testes of normal and tuberculous guinea-pigs. No reaction whatever developed in the testis of the normal animal, while a typical testis tuberculin reaction[16] followed in the tuberculous pig. Identical results were secured when the ground skin of a tuberculous animal was substituted for the testis. Tuberculin was apparently neither activated nor bound by the sensitized tissue.

These results have been criticized on the ground that correct quantitative relations between sensitized tissue and tuberculin might not have been observed, and it has been suggested that a much higher proportion of sensitive tissue be used. The justice of the argument is recognized, and present results are admitted to be inconclusive. Heretofore it has not been possible to measure the effect of tuberculin quantitatively, but a method based on the spermatocyte reaction,[16] which will permit fairly accurate measurement, has just been devised, according to which the experiments described above will be repeated. The experiments described, even if they might not give evidence of the binding of a small amount of the tuberculin by the testicular tissue, have at least this value—the conversion of even a very small amount of tuberculin into a substance toxic for normal tissue would certainly have been detected, for the testis reaction used in the detection is very delicate.

These results are in agreement with those of Selter,[17] who has repeatedly asserted that tuberculin is a specific irritant for the sensitized cell, which poisons the cell without, however, being bound by it. Selter's analysis of the tuberculin reaction is a statement of our ignorance of the true nature of the reaction rather than an explanation of it. And probably his view is the safest one to take at present.

THE NATURE OF TUBERCULIN[18]

Large quantities of a special tuberculin suitable for chemical investigation have recently been made available through the cooperation of the H. K. Mulford Company, Parke, Davis & Co., and the National Tuberculosis Association. A virulent tubercle bacillus (H_{37} of the Saranac Laboratory) has been grown on a medium devised by Long,[19] which has the following composition: asparagin, 5; ammonium citrate, 5; potassium acid phosphate, 3; sodium carbonate (dry), 3; sodium chlorid, 2; magnesium sulphate, 1; ferrous ammonium citrate, 0.05; glycerol, 50; water, 1,000. The composition is such that the medium is well buffered and requires no neutralizing or other titration. Luxuriant growth occurs in three to four weeks. The clear filtrate, after the bacilli have been removed, has been used for the preparation of highly potent dry products separated from all the original constituents of the medium.

---

[2] Cunningham, R S: The Physiology of the Endothelial Cell, Especially Its Permeability Under Normal and Pathologic Conditions, Am Rev. Tuberc 9: 491 506 (Aug) 1924

[3] Maximow, A. A. Tuberculosis of Mammalian Tissue in Vitro, J Infect Dis 34: 549 (June) 1924

[4] Foot, N C. Studies on Endothelial Reactions, II, The Endothelial Cell in Experimental Tuberculosis, J Exper. Med. 32: 513 (Nov.) 1920.

[5] Permar, H H: The Function of the Endothelial Cell in Pathological Conditions, Especially in Tuberculosis, Am. Rev. Tuberc. 9: 507-518 (Aug.) 1924

[6] Lewis, M R.; Willis, H. S, and Lewis, W. H: The Epithelioid Cells of Tuberculous Lesions, Bull Johns Hopkins Hosp. 36: 175-185 (March) 1925.

[7] Krause, A. K., and Peters, Dorothy: Studies on Immunity to Tuberculosis A Description of Graphic Records of the Local Allergic and Immune Reactions to Tuberculous Reinfection in Guinea Pigs, Am Rev. Tuberc 4: 551 561 (Oct) 1920.

[8] Krause, A. K, and Willis, H S: The Rate of Dissemination of Tubercle Bacilli in Normal and Immune Guinea Pigs, Bull Internat. Union Against Tuberculosis 1: No 3, 1924

[9] Nicolle, M, and Abt, G: Une conception generale des anticorps et de leurs effets, Ann. de l'Inst. Pasteur 22: 132 171, 1908

[10] Wolff Eisner, A: Ueber die Beziehungen zwischen der Theorie der Tuberkul[illegible] und der Tuberkulintherapie, Berl. klin Wchnschr. 4[illegible]

[illegible] Versuche betreffend die Uebertragung der [illegible] Ztschr f. Immunitätsforsch. u exper. Therap 1[illegible]

[12] Kraus, R, Loewenstein, E, and Volk, R: Zur Frage des Mechanismus der Tuberkulin Reaktion, Deutsch. med. Wchnschr 37: 389 391 (March 2) 1911.

[13] Selter, H: Ueber das Wesen der Tuberkulinreaktion, Ztschr. f. Immunitatsforsch u exper Therap 32: 325-354, 1921

[14] Klopstock, F. Zur Uebertragung der Tuberkulinempfindlichkeit, Ztschr f Immunitatsforsch. u. exper. Therap 40: 27-33, 1924

[15] Long, E R: Tuberculosis Reinfection and the Tuberculin Reaction in the Testicle of the Tuberculous Guinea Pig, Am. Rev. Tuberc. 9: 215-253 (May) 1924.

[16] Long, E R.: The Standardization of Tuberculin: Assay on the Basis of the Spermatocyte Reaction, to be published

[17] Selter, H.: Tuberculoseimmunitat, Tuberkulinempfindlichkeit, tuberkulöse Allergie, München. med. Wchnschr. 71: 462 (April) 1924

[18] The Experiments reported in brief here will be described in detail in a series of articles which will appear shortly in the American Review of Tuberculosis

[19] Long, E. R: A Review of Some Recent Studies on the Metabolism of the Tubercle Bacillus and on the Nature of Tuberculin, Tubercle 6: 1-8 140 (Dec) 1924

Experiment, many times repeated, has shown that when this tuberculin is suspended in dialyzing parchment or an animal membrane, the active principle does not dialyze out. All the original constituents of the medium dialyze readily, and can be detected in the dialysate, but the substance which elicits the tuberculin reaction remains within the dialyzing sac. In a few instances, slight escape of the active principle was indeed observed, but it is significant that the better the grade of dialyzing membrane the less likely this was to occur. We are therefore inclined to attribute the occasional results of others, indicating that the substance does dialyze, and the very few similar results of our own, to actual leakage of the dialyzing membranes.

The substance is thus to be considered a colloid or as something firmly adsorbed by a colloid. In the light of the second possibility, an attempt has been made to bind the active principle by a known effective adsorbent. Tuberculin, prepared from the medium described above, was treated with animal charcoal for several days. The mixture was then filtered and the charcoal well washed. The filtrate remained a highly potent tuberculin, and alkaline extraction of the washed charcoal failed to liberate any potent tuberculin whatever. These results indicate that if the substance was in an adsorbed combination, charcoal failed to free it; or, on the other hand, that it might be a colloid itself, not adsorbable, at least under the conditions of the experiment.

The nondialyzing colloid which shows tuberculin activity is of protein nature. Tuberculin, prepared from the medium described above, originally protein-free, invariably contains protein after a few weeks' growth of the bacillus. If this protein is the active principle itself, proteolytic ferments should destroy the activity. If, on the other hand, the active principle is merely adsorbed by protein and is not protein itself, destruction of the protein by ferments should not impair the activity of the preparation. As a matter of fact, the action of trypsin in a few days reduced the activity of such preparations to almost zero. This result confirms that of a large number of other investigators who have digested tuberculin, and strongly suggests, if it does not prove, that the substance which is active actually is protein.

Various methods of protein precipitation applied to this tuberculin have resulted in the isolation of protein products that elicit the tuberculin reaction. Moreover, special fractioning methods have led to the separation of active and inactive proteins.

The first precipitating method applied, and the easiest, was simple precipitation with acetic acid. The isoelectric and maximum precipitating point, obtained through the cooperation of Dr. I. S. Falk of the University of Chicago, proved to be p_H 4.0, a figure agreeing closely with that obtained by Gabbe[20] for an active substance obtained from tubercle bacilli and from old tuberculin. However, even at this reaction, precipitation of the active principle was never complete. The filtrate, on neutralization, invariably gave a tuberculin reaction. Furthermore, at no other concentration of acetic acid was it possible to secure complete precipitation. Hence this method, of which so much was hoped because of its easy application and the readiness with which the product could be centrifugalized, washed and dried, was finally discarded.

Of a number of other methods tried, precipitation with ammonium sulphate proved the most effective, and also the most laborious. Complete saturation with ammonium sulphate completely precipitates the active principle and all the protein. The filtrate from the precipitate, dialyzed free from ammonium sulphate, even when much concentrated, fails to elicit a tuberculin reaction in a tuberculous guinea-pig, while the precipitated product, when washed, dialyzed and dried, even in minute quantities, gives a marked tuberculin reaction.

This product is susceptible, however, of further purification. In brief, it may be separated into three protein fractions: (1) a water-soluble, heat coagulable protein; (2) a noncoagulable, alkali soluble, water-insoluble protein, and (3) a noncoagulable, water-soluble protein. The first of these possesses moderate activity, the second little, if any, and the third, marked potency. One ten thousandth milligram gives a strong tuberculin reaction in the testis of a tuberculous guinea-pig.

We are unable as yet to state whether the proteins so obtained are identical with the proteins of the tubercle bacillus, long known to be potent as tuberculin, or whether they represent a special secreted product. Our results await comparison with those of Johnson and Coghill, who are isolating proteins from the tubercle bacilli filtered from the same tuberculin.

Our results favor the view that the active principle of tuberculin is itself a protein, and confirm the results of others[21] who have reached the same conclusion.

SUMMARY

The active principle of tuberculin is nondialyzable; is not absorbed by animal charcoal; is destroyed by trypsin; is maximally but incompletely precipitated by acetic acid at p_H 4.0, and is completely precipitated by saturation with ammonium sulphate. The product precipitated by ammonium sulphate is of protein nature, and can be separated into three protein fractions, (1) a water-soluble heat coagulable protein; (2) a noncoagulable, alkali soluble, water-insoluble protein, and (3) a noncoagulable, water-soluble protein. Of these, the first and third appear to be the most potent.

The nature of the highly specific toxic action of this substance on the tissues of a tuberculous animal is not known. Preliminary experiments indicate that the tissues of the sensitized (tuberculous) animal do not act on tuberculin in such manner as to render it toxic for normal animals, nor do they bind the active principle in appreciable quantity, so as to render a tuberculin preparation less toxic for another tuberculous animal.

---

[20] Gabbe, E.: Ueber das Flockungsoptimum des durch Essigsäure fällbaren Substanz des Tuberkulins, Biochem. Ztschr. **141**: 523-531, 1923.

[21] A summary of the literature is given by Wells, H. G.; DeWitt, Lydia; and Long, E. R.: The Chemistry of Tuberculosis, Baltimore, Williams and Wilkins, 1923.

Bio-Assay of Thyroid.—It is suggested that the assay of thyroid be based primarily on the iodin content (the U. S. P. standard of 0.2 per cent. has been found feasible and satisfactory in the United States); that simple chemical tests be included for the detection of nonthyroid iodin; that in cases in which a physiologic test is desirable the acetonitril test as modified by Straub is recommended, but that the dosage be based on the iodin content of the preparation to be examined; that the standard be a preparation of thyroid of known origin containing 0.2 per cent. of iodin; that physicians be urged to use thyroid of known iodin content, and that they be requested to collect further data on the relation between the iodin content of the different samples of thyroid and their effect on the basal metabolism in cases of hypothyroidism.—Hunt, Reid: *Pub. Health Rep.* **40**:1466 (July 10) 1925.

CURVE OF INORGANIC BLOOD PHOSPHATES DURING THE SUGAR TOLERANCE TEST

SIGNIFICANCE IN DIAGNOSIS AND PROGNOSIS *

F. W. HARTMAN, M.D.
AND
ADOLPH BOLLIGER, Ph.D.
DETROIT

The discovery of insulin has centered the attention of investigators and clinicians on the treatment of abnormal carbohydrate metabolism somewhat to the exclusion of further refinements in the diagnosis of this condition. The work of Sherrill[1] brings out the importance of early diagnosis and shows how this may be accomplished through the use of the alimentary glucose tolerance test in obesity and in the families of diabetic patients. John[2] points out that, making allowance for such border-line conditions as renal glycosuria, toxic and infectious states and endocrine disorders, the simple glucose test reveals many early and latent cases of diabetes in which prophylactic measures are of value. Olmsted and Gay[3] emphasize all the various factors concerned in the duration of hyperglycemia after the standardized Janney glucose tolerance meal and the fact that each of these should be considered in the interpretation of blood glucose curves. Rigler and Ulrich,[4] reviewing the literature on the alimentary glucose tolerance test, feel that it is objectionable chiefly because of the great variability in the gastro-intestinal absorption time, rendering it inaccurate and misleading. They recommend, in lieu of the alimentary test, the continuous administration of glucose with blood examinations at intervals following. Tannhauser and Pfitzer[5] show that, even when the glucose is administered in this manner, the liver plays an important rôle in shaping the curve, since they demonstrated that the most abnormal curves were produced in diseases of the liver. These differences are probably caused by defective storage capacity, since similar abnormal curves have been observed by us in cases in which replacement or destruction of liver tissue was extensive, as chloroform poisoning, primary carcinoma of the liver, and multiple pyogenic and amebic abscesses.

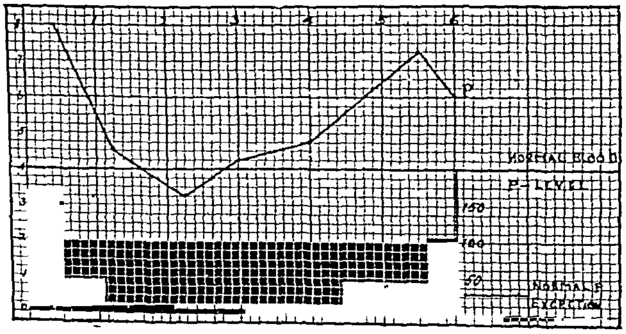


Chart 1 (Normal dog)—Utilization of inorganic phosphates after intravenous injection of 600 mg of phosphates adjusted to *p*H 7 0, with 100 units of insulin

Although the nature of the relation between carbohydrate and phosphate metabolism is yet to be established, the fact that there is such relation is demonstrated in the work of Harrop and Benedict,[6] Kay and Robinson,[7] Wigglesworth, Woodrow, Smith and Winter,[8] Briggs, Koechig, Doisy and Weber,[9] Perlzweig, Latham and Keefer,[10] Blatherwick, Bell and Hill,[11] Allan, Dickson and Markowitz[12] and others.

Confirmation of this relation, and additional facts regarding the inorganic phosphates of the blood during carbohydrate metabolism, were given in a previous communication,[13] thus summarized:

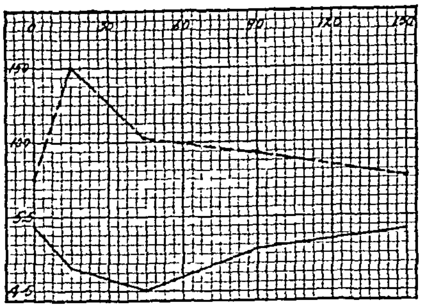


Chart 2 (T. W., aged 27)—History and physical examination essentially negative, 35 gm. of glucose by vein.

> In the partially depancreatized dog and the diabetic patient of the milder type, the curve of inorganic phosphates is depressed more gradually and the depression lasts longer than in the normal individual. This variation of the blood phosphate curve is even more apparent than the variation from normal in the corresponding blood sugar curve The more severe the diabetic state, the greater is the effect on the carbohydrate phosphate metabolism, and the level of blood phosphates approaches a straight line drawn parallel with the base line The demand for inorganic phosphates is apparent only when pancreatic hormone is available and carbohydrates are being utilized. It is unlikely that this utilization takes place in the liver, since it was observed to take place after medullary puncture and in animals whose livers had been reduced to a functionless mass of fat

The distribution of inorganic phosphates in the body, after the administration of insulin and glucose, has been studied by Harrop and Benedict.[6] They found a decrease in the blood and an increase in the muscles, and at the same time a depressed excretion.

The utilization of inorganic phosphates was studied in two groups of experiments after

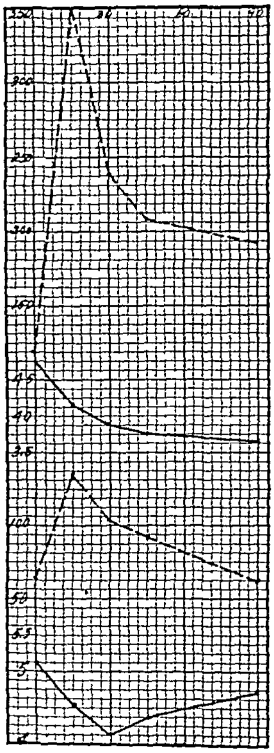


Chart 3 (F. A, aged 25)—Fracture of skull: (*a*) 25 gm of glucose twelve hours after accident, (*b*) 25 gm of glucose fourteen days after accident.

---

* From the Laboratories of the Henry Ford Hospital

* Read before the Section on Pathology and Physiology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N J, May, 1925

[1] Sherrill, J. W Diagnosis of Latent or Incipient Diabetes, J. A. M A **77**:1779 (Dec 3) 1921

[2] John, H. T. J Metabol Res **1**:498 (April) 1922

[3] Olmsted, W H, and Gay, L P. Study of Blood Sugar Curves Following a Standardized Glucose Meal, Arch Int. Med. **29**:384 (March) 1922

[4] Rigler, L. G, and Ulrich, H. L: Blood Sugar Reaction Following Intravenous Injection of Glucose, Arch Int Med **32**:343 (Sept) 1923.

[5] Tannhauser and Pfitzer. München med. Wchnschr **9**:2155, 1913

[6] Harrop, G A., Jr, and Benedict, E. M. J Biol. Chem **59**:683 (April) 1924

[7] Kay, H D, and Robinson, R Biochem J. **18**:1139, 1924

[8] Wigglesworth, V B; Woodrow, C E; Smith, W, and Winter, L J J Physiol **57**:447 (Aug) 1923

[9] Briggs, A P; Koechig, J.; Doisy, E A, and Weber, C. J.: J. Biol. Chem **58**:721 (Jan) 1924

[10] Perlzweig, W. A.; Latham, E., and Keefer, C S: Proc. Soc Exper. Biol. & Med **21**:33, 1923 1924.

[11] Blatherwick, N. R.; Bell, M, and Hill, E J. Biol Chem **61**:241 (Aug) 1924.

[12] Allan, F. N.; Dickson, B R, and Markowitz, J: Am J Physiol **70**:333 (Oct.) 1924.

[13] Bolliger, A, and Hartman, F. W.: J Biol Chem **63**, May, 1925.

the administration of phosphates and insulin. In the first group of experiments (of which Chart 1 is a typical example) dogs whose level of blood phosphates and phosphate excretion had been established during the preceding twenty-four hours were given phosphates intravenously along with large doses of insulin. The immediate increase in the blood phosphates (shown as a solid line) and the phosphate excretion after the injection is followed by a sharp fall well below the normal level in the blood and a reduction to one fifth of the normal excretion in the urine at the end of two hours and fifteen minutes. From this point there is gradual increase in the blood phosphates along with increased excretion in the urine up to the end of a six hour observation period.

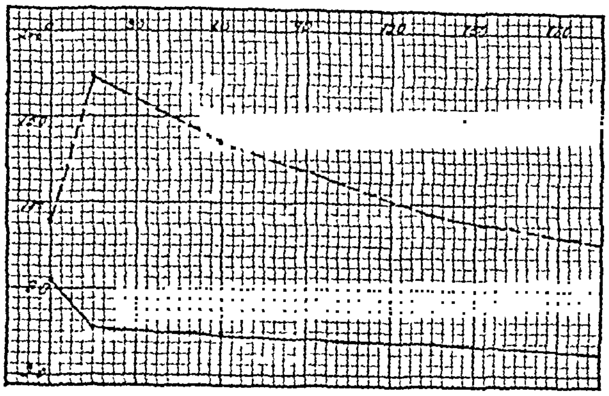


Chart 4 (J. W., aged 40).—Treated diabetic patient with cataract; 35 gm. of glucose by vein.

Increase of Inorganic Phosphates in Liver Under Insulin

			Blood		Muscles		
Rabbit No.	Weight, Kg.	Time	Sugar	Phosphate	Total Phosphate per 100 Gm.	Increase per 100 Gm.	Comment
1	1.9	8:40	96	3.46	155	..	132 mg. P; 30 units
		9:50	18	8.06	182	27	insulin; slight convulsions
2	1.1	2:30	141	3.70	165	..	88 mg. P; 20 units
		3:30	44	8.40	188	23	insulin; quiet
3	3.1	2:45	118	3.56	175	..	132 mg. P; 20 units
		3:45	54	6.66	192	17	insulin; quiet

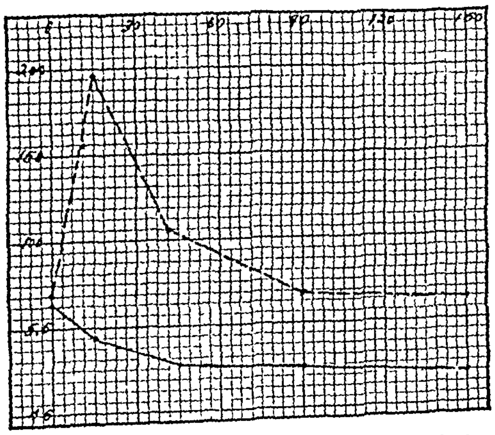


Chart 5 (M. M., aged 57).—Hypertension, furunculosis and bronzed skin: 35 gm. of glucose by vein; phosphate curve more consistent with clinical picture than sugar curve.

The second group of experiments includes the injection of phosphates and insulin intravenously in rabbits, with examination of the muscle for the total phosphate content one hour after the injection. The results are given in the accompanying table. The muscle analyses previously described were done on the living animal without anesthesia. During the excision under these conditions there is necessarily a maximum muscular activity on the part of the animal, with resultant utilization of carbohydrates and the return of the phosphates to the blood. In our experiments the tissue was excised fifteen minutes after the induction of spinal anesthesia, so that muscular activity was reduced to a minimum. The increases in the phosphate content of the muscles are large when we consider that the muscles constitute two fifths of the entire body weight. The phosphate increases in the blood are negligible as compared with those in the muscles, since the blood comprises only one twelfth of the body weight. From these two groups of experiments it is evident that the immediate fate of inorganic phosphates under insulin is comparable to that of glucose under insulin. The principal exception to this similarity was shown in a recent work of Cori and Goltz[14] when they demonstrated that the increase of inorganic phosphates in the liver under insulin is exceedingly small.

In view of these findings, it seemed of interest to follow the curve of inorganic phosphates of the blood as well as the blood sugar curve after the injection of glucose. This was done without selection on our part. Both analyses were done in those cases in which sufficient blood was available. The work includes the study of some sixty cases, and the curves may be divided into seven groups: (1) those showing normal carbohydrate metabolism; (2) those showing slightly abnormal carbohydrate metabolism; (3) those showing moderately abnormal carbohydrate metabolism; (4) those showing markedly abnormal carbohydrate metabolism; (5) those showing complete absence of pancreatic hormone; (6) those showing abnormal carbohydrate metabolism related to the pituitary, and (7) those showing abnormal carbohydrate metabolism related to the suprarenals.

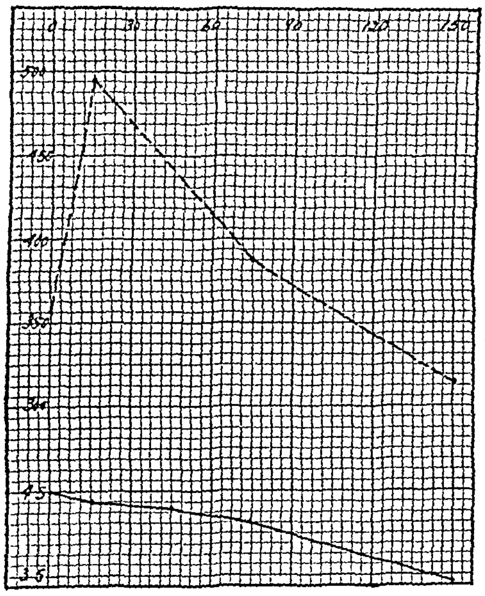


Chart 6 (E. W., aged 52).—Diabetic patient with myocarditis and obesity: 35 gm. of glucose by vein.

In the first group—those cases showing normal carbohydrate metabolism—the phosphate curve shows a marked depression with the lowest point being reached within one hour after the injection and a return to normal (Chart 2).

In the second group—those showing slightly abnormal carbohydrate metabolism—the curve of inorganic phosphates is depressed at about the same rate and to about the same depth as in the normal individual but it reaches its lowest point only after one and a half hours, with a subsequent return to normal. This curve is well illustrated in a dog after medullary puncture and in a human being after head injury.[15] They doubtless represent a temporary defect in the storage capacity of the liver (Chart 3).

---

[14] Cori, C. F., and Goltz, H. L.: Am. J. Physiol. 72: 256, 1925.

In the third group — moderately abnormal carbohydrate metabolism—were cases showing a gradual depression which reaches its deepest point two and one half hours after the injection of glucose, which may or may not return to normal during the period of observation (Charts 4 and 5).

In the fourth group—markedly abnormal carbohydrate metabolism—the curve of inorganic phosphates shows a gradual straight line descent or a sudden depression, and then a straight line curve running parallel with the base line with no tendency toward recovery during the period of observation (Chart 6).

In the fifth group—complete absence of pancreatic hormone—the curve of inorganic phosphates shows no alteration from the starting point, and the observations are plotted on a straight line parallel with the base line (Chart 7).

In the sixth group—abnormal carbohydrate metabolism related to the pituitary—it has been shown by Burn[16] that insulin is a direct antagonist of pituitary extract as regards the effect on sugar metabolism. A similar observation was made in our previous communication as regards inorganic phosphate metabolism. These variations are well illustrated after the simultaneous injection of insulin and pituitary extract, resembling the curves of inorganic phosphates in the case of pituitary tumor. That is, with the elevation of the blood glucose there is an elevation of the blood phosphates, the peak lagging somewhat behind the peak of the glucose curve (Chart 8).

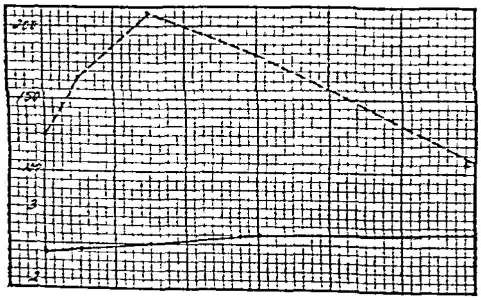


Chart 7 (C S, aged 46) —Diabetic patient with high carbon dioxid content of blood and edema succumbing to carbuncle and septicemia six weeks after sugar tolerance test 35 gm of glucose by vein.

In the seventh group—abnormal carbohydrate metabolism as related to the suprarenals—the effect of epinephrin on blood phosphates has been studied by Perlzweig, Latham and Keefer.[10] In our previous observation[13] it seemed that the depressions in the blood phosphates were greatly exaggerated by epinephrin, as compared with the curve following insulin or glucose administration. However, in the depancreatized animal the administration of epinephrin alone did not affect the blood phosphates, so that we were in agreement with Allen, Dickson and Markowitz that insulin and epinephrin are not antagonistic. The curve in the human case is represented by a girl, aged 19, with a tentative diagnosis of Raynaud's disease. The sugar curve is somewhat abnormal, but the phosphate curve shows the same characteristics as those after the administration of epinephrin (Chart 9).

METHODS

For blood sugar determinations, the method of Folin and Wu[17] was used. For inorganic phosphates, the recent method of Benedict[18] was used. Most of the glucose was given intravenously in amounts varying from 25 to 50 gm. A few patients received glucose by mouth. The amount and method of administrating the glucose has little effect on the phosphate curve except that the lowest point is reached a half hour later when administered by mouth. The uniformity is due to the fact that the liver is little concerned. Intravenous injection of 0.1 gm. of glucose per kilogram of body weight in a dog gives only a slight variation in the sugar curve, but a typical phosphate curve. In continuation of this work, a series of patients will be studied, a small dosage of glucose being used.

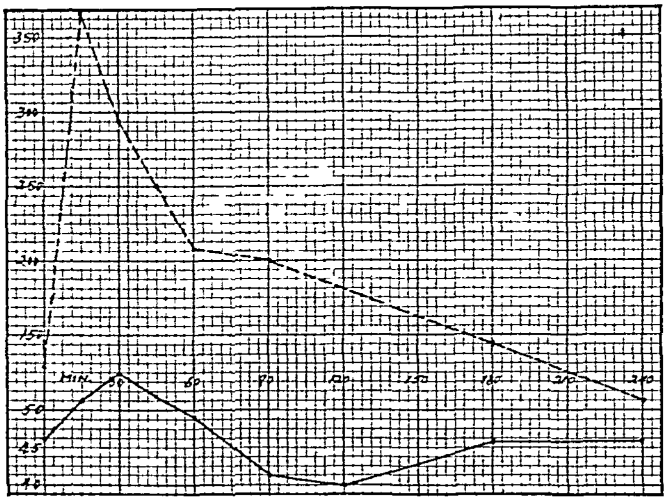


Chart 8 (S E, aged 45) —Pituitary tumor confirmed by operation: 35 gm of glucose intravenously.

COMMENT

Few refinements in the diagnosis of abnormal carbohydrate metabolism have been made since the introduction of the Janney[19] glucose tolerance meal. The intravenous administration advocated by Rigler and Ulrich is now widely used, but even with this the blood glucose curves, especially in the early or doubtful cases,

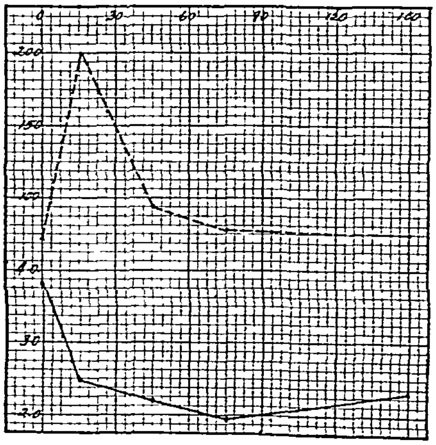


Chart 9 (R. B, aged 19) —Clinical diagnosis, Raynaud's disease: 25 gm of glucose by vein.

---

[15] Allen, C L, and Davidson, E C: Bull Johns Hopkins Hosp, to be published

[16] Burn, J H: J Physiol 57:318 (June) 1923

[17] Folin, Otto: Laboratory Manual of Biological Chemistry, Ed 3, 1922, pp 229 291.

[18] Benedict, S R, and Theis, R. C: J Biol Chem 61:63 (Aug) 1924

[19] Janney, N. W, and Isaacson, V. T. Blood Sugar, J A. M. A. 70:1131 (April 20) 1918.

are difficult to classify. This difficulty is, we believe, largely due to the fact that the liver may play a greater or lesser rôle.

It has been shown that the effect of pancreatic hormone on inorganic phosphate metabolism is comparable to that on carbohydrate metabolism reducing the blood content and urine excretion, with a correspondingly increased amount in the muscles. Further, the presence of insulin is as essential for the utilization of phosphates as it is for the utilization of carbohydrates, if not more so.

With these experimental data in mind, the curve of inorganic blood phosphates was determined in a series of clinical cases. These curves agree with the blood sugar curve for the most part, but in some instances they are clearly abnormal where the sugar curve is debatable. Others show marked abnormality when the sugar curve is considered mild. They also show the complete absence of functioning pancreas when the sugar curve is at best only suggestive of this condition.

The phosphate curves fall easily into seven groups, one to five including the normal, slightly, moderately and markedly abnormal carbohydrate metabolism, and the individual with a functionless pancreas. The last two groups point to abnormal carbohydrate metabolism as related to pituitary and suprarenals when interpreted in the light of experiments with extracts of these glands.

The curves may be considered as only suggestive after application to such a small series of patients, and the groupings will doubtless be modified in the observations of larger series.

SUMMARY

1. The effects of insulin on phosphate utilization are comparable to those on carbohydrate utilization.
2. Abnormal carbohydrate metabolism may be divided into seven groups by means of the blood phosphate curve.
3. Slight abnormalities and the functionless pancreas are readily identified through the phosphate curve.
4. Abnormal carbohydrate metabolism associated with the pituitary, and possibly with the suprarenals, may be recognized.

ABSTRACT OF DISCUSSION

Dr. Roger R. Hannon, New York: The relation of the phosphates to carbohydrate metabolism has been of great interest for a long time. Hardin and Young showed that there was a glucose-phosphate compound in yeast which must be present if fermentation is to take place. Emden, Laquer, Euler and others demonstrated a similar compound in all mammalian muscles. Many physiologists consider this as the precursor of the lactic acid and a source of energy. Dr. Hartman has followed the phosphate and blood sugar curves in these clinical conditions which he has mentioned, and following the injections of insulin, epinephrin and pituitary extract. He has found a variation in the curves which seems to parallel somewhat the utilization of carbohydrate and the effect of insulin. I think, however, that Dr. Hartman must realize that when he deals with an inorganic radical like the phosphate radical, he is dealing with only one factor in a very complex physicochemical system. We believe that the phosphates play a part in the acid-base balance, in calcium metabolism, etc. We think that there is a disturbance in the protein, and in the fat metabolism when there is a disturbance of the carbohydrate metabolism. The point to consider is whether the relation brought out by Dr. Hartman is a direct or an indirect relation, a direct or an indirect effect of the insulin. One can hardly say from the data that he has given what the mechanism is. With regard to his results with insulin, it seems to be a direct effect, possibly through storage or through utilization. From our present knowledge of the action of epinephrin, it is supposed to mobilize glucose, and yet he gets a similar depression of the phosphate curve as with insulin. Thus, it may follow more closely the utilization of glucose. McCann and Lyman have followed the blood sugar curves and respiratory quotient curves following the administration of glucose, insulin and epinephrin. This is also a valuable test for disturbances of carbohydrate metabolism. I think Dr. Hartman's results are important, and can be used clinically when a careful study of the carbohydrate metabolism is desired.

Dr. F. W. Hartman, Detroit: Many of the points brought up by Dr. Hannon are now under investigation; but, with the data at hand, it does seem that whether the effect on the phosphorus curve is a direct or indirect one, this may develop into a helpful diagnostic measure, especially if taken in conjunction with the blood sugar curve.

THE CONTROL OF RICKETS

PRELIMINARY DISCUSSION OF THE DEMONSTRATION IN NEW HAVEN *

MARTHA M. ELIOT, M.D.
NEW HAVEN, CONN.

That animals can be protected against rickets by the use of cod liver oil and ultraviolet rays is an established fact. It has also been clearly shown that cod liver oil and sunlight exert a great influence in the cure of rickets. Whether these measures are sufficient to prevent rickets in infants in a community is the problem on which we are working in the demonstration in New Haven. It is my purpose to set forth briefly the plan of the study and to offer a preliminary discussion of the results.

The demonstration was started in October, 1923, for a three year period by the United States Children's Bureau in conjunction with the pediatric department of the Yale School of Medicine and with the active cooperation of the local health organizations.[1] A district of the city was selected having a population of approximately 13,500, one third of which were negroes, and two thirds a mixed population composed of Italians, Irish, Polish and Americans. The office of the demonstration is known in New Haven as the "Children's Bureau." The staff consists of three physicians, three public health nurses, two social investigators, a roentgen-ray technician and a secretary. The staff is necessarily large in order that the records may be complete and accurate.

The main problem of the investigation was to show whether rickets could be prevented in a community by the intensive use of cod liver oil and sunlight. The infants born within the selected district during the first two years of the study are examined and started on cod liver oil and sunbaths, if possible, before the end of the first month of life. They are brought to the Children's Bureau once a month for physical and roentgen-ray examinations in order that rickets may be discovered as early as possible and intensive treatment instituted if necessary. The nurses visit the homes frequently to see whether the instructions are being carried out. In order to provide control material for the investigation, it was necessary to take for examination the children under 5 years of age living in the district at the time when the demonstration started. Later, however, it became clear that it was even more important to have for comparison a group of infants who were born during the period of the demonstration, but who had received no cod liver oil and concerning whom no instructions regarding sunlight had been given. Examination of such a control group was begun at the end of the first year of the demonstration and has continued throughout the past winter. The infants of this group correspond in age to those in the district who are being given antirachitic treatment.

---

* From the United States Children's Bureau and the Pediatric Department of the Yale School of Medicine.

* Read before the Section on Diseases of Children at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] New Haven Health Department, New Haven Medical Association, Department of Public Health Yale School of Medicine, and the Visiting Nurse Association.

The daily routine in the demonstration is comparatively simple. The birth certificates of babies born in the district are sent to the Children's Bureau office by the board of health. If the certificate is signed by a local physician, a call is made by one of the Children's Bureau physicians, to explain to him the purpose of the demonstration and to ask his cooperation. If the physician has already been seen, a letter is written telling him that the birth certificate has been sent to the Children's Bureau, and that the mother will be urged to bring the baby for examination. No new baby is brought to be examined without the knowledge and consent of the family physician. When the nurse takes the birth certificate to the mother, she has an opportunity to tell the mother about the Children's Bureau, and to make an appointment for the baby to be examined as soon as the mother is able. At the first visit the baby is weighed, measured and examined thoroughly. At this visit, also, a roentgenogram is taken of the bones of both forearms. A uniform technic in taking the roentgenograms is used for all babies, so that the films may be compared satisfactorily with one another. Before leaving, the mother is given general advice by the physician with regard to routine feeding and care of the baby. She is instructed to give both cod liver oil and sunbaths to the baby, and is asked to bring him back once a month for physical and roentgen-ray examinations.

The importance of teaching the mother how to give the cod liver oil to the baby cannot be overemphasized. Success in the administration of cod liver oil to babies depends on two things: the method used, and the ability of the physician or nurse to convince the mother of the value of the cod liver oil. An actual demonstration of the best method of administration is given to each mother by one of the nurses. With the baby lying across her lap, the nurse pours out the proper dose in a spoon held in her right hand. With her left hand she opens the baby's mouth by pressing the cheeks together between her thumb and fingers. The oil may then be poured little by little into the baby's mouth. If the mouth is not held open until the oil entirely disappears, the baby will spit out what is left. When this happens, the mother very frequently reports that the baby has vomited the oil. It is frequent for infants to spit out oil not yet swallowed, but in only a few instances have we found that the infant actually vomits it. Attempts to disguise the taste of the oil for very young babies are unnecessary. If by the fifth or sixth month the baby begins to object to the cod liver oil, it may be given with orange juice. Some babies may be taught to take it through a large rubber nipple or from a bottle. In the latter case, more oil than is desired for a single dose must be put into the bottle to allow for that which will adhere to the glass. The addition of a little molasses or honey to the spoonful of cod liver oil will sometimes disguise the flavor for older children. Most babies and little children can be taught to take the pure oil, if it is looked on with favor by the mother and no unpleasant associations are attached to it. Many children who are given cod liver oil from the earliest months of infancy like it and even "cry for it." Others have to be taught to take it.

At the beginning of the demonstration it was believed that from 10 to 20 drops of pure cod liver oil given twice a day was sufficient to protect very young infants from developing rickets. Within a very few months, however, it was found that infants taking this amount more or less regularly showed roentgen-ray evidences of early rickets. Moreover, it was found that if the oil was once measured in drops, the mothers were loathe to give it later by the teaspoonful. The following routine therefore has been followed for the last sixteen months. Babies seen before the end of the first month of life are given one-half teaspoonful of pure cod liver oil twice a day. During the second month the dose is gradually increased to 1 teaspoonful twice a day. If the roentgenogram shows any progress in the rachitic process, this dose is again increased so that it amounts to 1½ teaspoonfuls twice a day or even 1 dessertspoonful twice a day by the end of the third or fourth month. It has been found that this amount of cod liver oil is well tolerated by babies and that it can be successfully given in summer as well as in winter. During the hot summer months, the oil is best given in the early morning and at night. The bottle of oil should be kept cool.

Demonstrations of the sunbaths are given by the nurses at their visits to the homes. If the baby is fortunate enough to have been born between the first of March and the first of September, sunbaths are started outdoors before the end of the first month of life. If the baby is born in the winter months, the sunbaths frequently must be given indoors inside an open sunny window. At whatever season the baby is born, however, the mother is impressed with the importance of direct sunbaths. She is taught that the full value of the sun's rays is obtained only when they reach the skin without the intervention of clothing or window glass.

When outdoor sunbaths are given, the hands and face are exposed first for ten or fifteen minutes only. After the first few days other parts of the body, at first the arms and a little later the legs, are in turn exposed to the sun. The period of exposure is increased two or three minutes daily. The increase for infants with dark skins may be more rapid than for infants with fair skins. As the weather gets warmer, the arms and legs and in time the whole body may be exposed together. As the baby becomes accustomed to the sunbath, the period is lengthened to one hour twice daily. Care must be taken to increase the length of the sunbath gradually, so as not to burn the skin. Sufficient exposure daily to produce slight reddening will gradually tan the skin. Pigmentation is the outward evidence that the ultaviolet rays of the sunlight are effective. It is important, too, in the intense heat of July and August, that the sunbaths should be given before 10 o'clock in the morning and after 3 o'clock in the afternoon. The baby's head at this season should be protected from the sun between these hours. Graduated outdoor sunbaths, such as are here described, may be given to any baby 3 or 4 weeks old who is born in the spring and summer.

In our northern climate it is possible to give outdoor sunbaths to healthy infants even in the winter. Feeble and premature infants cannot, of course, be exposed outdoors in winter. It is well known that the temperature on a cold day may be 40 or 50 degrees higher in the direct sunlight than it is in the shade. The heat of the sunlight, which we would so gladly dispense with in July and August, must be utilized in winter to its greatest extent. The baby born in the fall or winter may be given outdoor sunbaths except on days when the temperature is below freezing. Many mothers, however, prefer to give indoor sunbaths to young babies. These may be satisfactorily given in front of an open sunny window, preferably facing southeast to get the morning sun. The room should be warmed and the doors closed to avoid drafts. The window may be opened either at the top or at the bottom, but it is necessary that the baby lie in the patch of sunlight coming through the open space. These indoor winter sunbaths should preferably be given between 10 and 1 o'clock when the ultraviolet content of the sunlight is most intense. Increase in the amount of skin surface exposed and the length of exposure should be gradual; but, in time, the face, arms and legs may be slightly tanned, even in winter. It may not be possible to expose the whole body. Babies who are given indoor sunbaths in winter may begin outdoor sunbaths early in the spring, so that they will be well tanned by the end of April.

For the last eleven months a mercury vapor quartz lamp has been used as an additional means to control the rickets in those cases in which the roentgen ray showed the disease to be advancing. Treatments have been given at an 18 inch distance on the front and back of the trunk and on the lower extremities, beginning with an exposure of two minutes and increasing gradually to twelve or fifteen minutes. Treatments have been given three times a week, when possible. The average mother, however, has not been willing to bring the baby more often than twice a week.

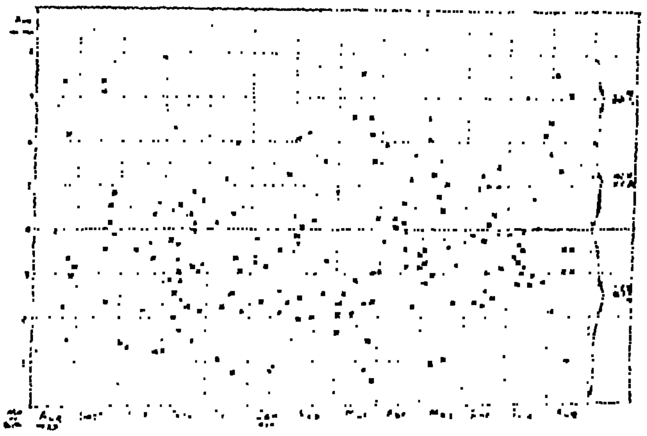


Chart 1.—Age incidence of rickets by roentgen-ray examination. The early incidence by roentgen-ray examination, shown in this chart, should be compared with the late incidence by clinical examination, shown in Chart 2.

A preliminary report may be given at this time of the group of babies born in the first year of the demonstration, from Aug. 15, 1923, to Aug. 15, 1924. It has been possible to follow a series of 216 babies with more or less regularity. These babies range in age at the present time from 8 to 18 months. The accompanying table shows the amount of antirachitic treatment taken by these infants grouped according to the degree of cooperation of the parents. Group 1 includes those babies who received regular treatment throughout the period of observation. The average amount of cod liver oil taken per month by the babies in the different groups is shown in this table. The 116 babies in Group 1 took an average amount of 3⅗ ounces (107 c.c.) a month—1 teaspoonful a day—over an average period of twelve months. In contrast to this group stands Group 2 (*c*), in which the babies took an average of only 1 ounce (30 c.c.) a month for six months. The maximum amount that any baby took each month was 10⅗ ounces (314 c.c.). Many babies in Group 1 took an average of 8 ounces (236 c.c.) a month—2 teaspoonfuls a day—for twelve months. The amounts of direct exposure to the sun are indicated on the table as good, fair and poor; good meaning regular exposure summer and winter, fair meaning moderate exposure irregularly given, and poor meaning little or no direct exposure. Group 2 includes, (*a*) thirty children who received treatment regularly but after 6 months of age, (*b*) twelve who received treatment only for the first six months and (*c*) fifty-eight who received little or no cod liver oil and who apparently had little direct sunlight. Group 2 (*c*) cannot be considered as a good control for the first two groups, because many of the babies received either a small amount of cod liver oil or some sunlight.

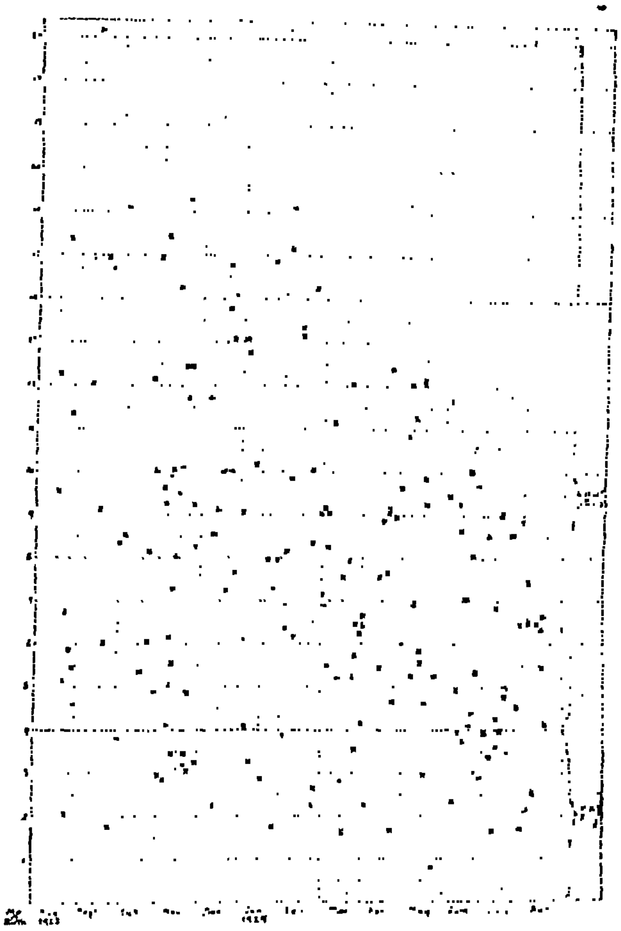


Chart 2.—Age incidence of rickets by clinical examination.

The extremely early incidence of rickets found by roentgen-ray examination in our series of infants is shown in Chart 1. Twenty-three, or 11 per cent. of the 216 infants, showed no rickets at any time by roentgen-ray examination. One hundred and seventy-nine, or 83 per cent., showed evidence of mild rickets by roentgen-ray examination before eight months of age. The remaining fourteen, or 6 per cent., showed rickets by roentgen-ray examination after eight months, but are not included in the chart since roentgenograms were not taken covering the early months during which the rickets may have first developed. Chart 1 shows the 179 infants who developed early rickets, arranged according to the month of birth and the age in months at which the roentgenograms showed the first positive evidence. It is noteworthy that in 90 per cent. of these cases, rickets was recognized before 6 months of age, in 65 per cent. before 4 months, and in 12 per cent. before 2 months. Of these early diagnoses, 53 per cent. were made in the third and fourth months.

The diagnosis of rickets by roentgen ray at this early age has been made by the study of many series of roentgenograms taken at monthly intervals. By means of these series it is possible to trace back the disease from its well defined stage at 6 or 7 months to its earlier stages, and finally to recognize it in its incipient stage in the first, second or third months of life. The earliest changes may thus be clearly defined.

In a roentgenogram of the bone of a normal infant, the end of the shaft, if seen in exact cross section, is clearly defined and convex, and the corners are rounded. If the bone is tipped, the surface of the end of the shaft is seen, and the roentgenogram is less distinct. It is sometimes difficult to differentiate between a change due to position and the change due to rickets. The earliest changes of rickets demonstrable by roentgen ray in the bones of the forearm appear at the distal end of the shaft of the ulna. The first change is not always the same in different infants. The beginning of the rachitic process is frequently indicated by the appearance of slight prolongations from the cortex of the bone, or hairlike projections creeping around the cartilage at its periphery. These projections are probably the first evidence of the well known fraying. Whenever these prolongations have been seen in plates taken in the first or second months, later plates have shown other evidences of rickets. In early rickets, moreover, there is frequently very slight cupping of the distal end of the bone, and the end of the shaft is widened with sharp instead of rounded corners. The line of demarcation between the cartilage and shaft may not be clearly defined and may show slight irregularities. When fraying can be seen at the end of the bone, or there is more than the slightest cupping or flaring, the rachitic process has progressed beyond its incipient stage. If cod liver oil is given to young infants showing these slightest changes by roentgen ray, lime salts will be deposited at the end of the bone, marking out and sometimes apparently intensifying the evidence of rickets. Frequently, after cod liver oil has been given, a fine line can be seen just above the end of the shaft outlining the zone of primary calcification and indicating that a slight rachitic process had been present, but is now under control. The use of cod liver oil or ultraviolet rays will often help in making the diagnosis of early rickets.

Verification of these changes shown by the roentgen ray in early rickets is being made by the pathologic study of ulnae and radii obtained from young infants at necropsy. In each case a roentgenogram is taken of the bones, and the roentgen-ray diagnosis verified by microscopic examination of stained sections. Only a few such examinations have been made up to the present time, but in each case in which incipient rickets has been diagnosed by the roentgen ray, microscopic examination has shown it to be present.

Chart 2 shows the age at the appearance of rickets by clinical examination. Of the 216 infants studied, 186, or 86 per cent., showed physical signs of rickets. Thirty infants showed no clinical signs of rickets. A comparison of Charts 1 and 2 shows that the clinical evidence of rickets appeared much later in our series of infants than did the roentgen-ray evidence. Of the clinical diagnoses 80 per cent. were made after 4 months of age, the average age being 8 months.

An early clinical diagnosis of rickets is very much more difficult to make with any degree of certainty than an early roentgen-ray diagnosis, because the deformities of rickets are exaggerations of the normal shape of bones and cartilage. Even though we know that 83 per cent. of infants at 8 months will show some roentgen-ray evidence of the disease, it is difficult in many cases to be sure that certain indefinite clinical signs are manifestations of rickets. The line of differentiation between the palpable costochondral junctions of the normal baby and the slightly enlarged costochondral junctions of early rickets is impossible to draw. One is easily deceived regarding enlargement of the epiphyses at the wrist either by too much or by too little fat. It is difficult to tell the exact time at which the prominence of the parietal bones, present in many negro babies at birth, must be called rachitic bosses, or when an inherited prominent forehead, or a very large head, such as is seen in premature babies, must be called rachitic.

In our investigation, a clinical diagnosis of rickets has been made when any two of the following well recognized early signs of rickets have been definite: enlarged costochondral junctions, enlarged epiphyses at the wrist, enlarged cranial bosses, craniotabes or a Harrison's groove. In a large proportion of our cases, when one sign was definitely present, others were also. A diagnosis has not been made on one sign alone except in the case of craniotabes; when craniotabes has been sufficiently marked, the clinical diagnosis has been made on that alone. Unless the softening extended into the bodies of the cranial bones, it has not been considered sufficient evidence for a diagnosis. In most of our cases of moderate or marked craniotabes, other signs have been present. In all the cases in which craniotabes was present, the diagnosis of rickets was corroborated by roentgen ray.

Amount of Antirachitic Treatment Taken by Two Hundred and Sixteen Infants Grouped According to Degree of Cooperation of Parents

	Infants Studied		Cod Liver Oil					Sun: Direct Exposure		
	Number	Per Cent.	Average Amount Taken, Ounces	Average Number of Months	Average Amount Taken per Month, Ounces	Largest Average Amount Taken per Month, Ounces	Smallest Average Amount Taken per Month, Ounces	Good	Fair	Poor
1. Regular treatment throughout period	116	53	43.2	12	3.6	8.5	1.3	78	30	8
2. Regular treatment:										
(*a*) After 6 months	30	14	34.7	8.5	4.09	10.6	1.5	12	13	5
(*b*) Before 6 months	12	6	20.0	8.5	2.36	4.0	0.29	1	9	2
(*c*) Little or no treatment	58	27	6.3	6	1.05	4.83	0	—	7	51
Totals	216	100				4 to 10.6	0 to 1.5	91	59	66

The importance of the fact that definite clinical signs of rickets do not appear until after the roentgen-ray evidence cannot be overemphasized when considering the problem of prevention. It is well known that the curative effect of cod liver oil and light are not marked until from the third to the sixth week of treatment. It may be supposed, therefore, that the preventive effect of these measures will not be well established for at least a month. If 65 per cent. of infants with rickets show the roentgen-ray evidences before the end of the fourth month, prophylactic treatment should certainly be begun by the end of the first month, if not sooner. Our figures indicate that even larger doses of cod liver oil than we have given and longer exposure to direct sunlight should be recommended, if the disease is to be entirely prevented. Perhaps, as will be pointed out later, rickets cannot be entirely prevented in rapidly growing infants.

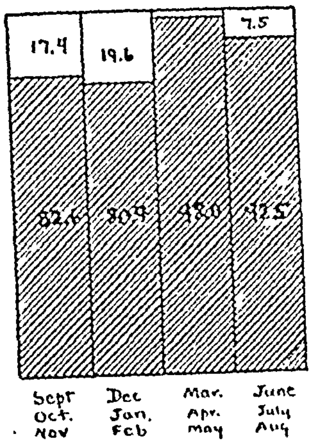


Chart 3.—Seasonal incidence of rickets by month of birth, as shown by the roentgen ray. Early rickets shown by roentgen-ray examination may occur at any season regardless of the month of birth.

The seasonal incidence of the first evidence of rickets by roentgen-ray examination is shown in Chart 3. The time of the year in which the infant is born has made essentially no difference in the appearance of these early changes. These changes were shown by a somewhat larger percentage of babies born in the spring months than of those born in other seasons. The percentage of the infants born in the summer who showed the first evidences of rickets before the end of two months was smaller than the percentage of those born in the winter. The well known seasonal variation in rickets depends on the season of examination and not on the season of birth. Slight rickets is found in young infants at all seasons of the year, moderate or marked rickets in the winter months.

Chart 4 shows the total incidence of rickets by both roentgen-ray and clinical examination in the series of 216 infants of the demonstration group and in three groups of control infants. The first control group consists of 127 infants who were born outside the demonstration district during the same months as our series, from August, 1923, to August, 1924, concerning whom no instructions regarding sunbaths had been given, and who had taken no cod liver oil. The second and third control groups are children born in the two years previous to the beginning of the demonstration, who had had no antirachitic treatment. The total incidence of rickets in the demonstration group (96 per cent.) is undoubtedly higher than in the control groups, because, as a result of repeated examinations, evidence of transient rickets by the roentgen ray, and slight rickets by clinical signs, has been found more frequently than in the control groups in which only one examination has been made. In the control groups a doubtful roentgenogram was classified as negative, whereas in the demonstration group a doubtful roentgenogram was usually followed in a month or two by a positive one. Moreover, in the first control group only 5 per cent. of the infants are negroes, whereas in the demonstration group 26 per cent. are negroes. The second and third control groups have 24 per cent. and 19 per cent. of negroes, respectively.

Charts 5 and 6 show the incidence and severity of rickets by roentgen-ray and clinical examination in the group of 116 infants shown in Table 1, who received regular antirachitic treatment, and in the three groups of control cases. The average age when the diagnosis of rickets was made by roentgen ray in the treated group was 4 months; by clinical examination, 8 months. In the three control groups the average ages were 10, 13 and 25 months at the time of diagnosis. None of the infants of the demonstration developed marked rickets, and only 4.3 per cent. developed moderate rickets shown by roentgen ray, whereas 23 per cent. of the first and 34 per cent. of the second control group showed both moderate and marked rickets. The antirachitic treatment given to the infants in the series of the demonstration has been successful in keeping them from developing advanced rickets.

Chart 7 shows the percentage of infants with active rickets found by roentgen-ray examination and the percentage with rickets which is under control or completely controlled in the group of 116 infants who received regular antirachitic treatment and the percentage in the three control groups. "Active" means that the disease is progressing without evidence of lime salt deposit; "under control" that the disease is still present, but lime salts are being deposited, and "completely controlled" that there is evidence of the previous existence of rickets which is no longer active. At the present time 37 per cent. of the treated infants show complete control. The first two control groups show activity in 18.5 per cent. and 21 per cent., and complete control in only 7 per cent. and 8 per cent. The third control group at the average age of 25 months shows 38 per cent. completely controlled, the same amount as the treated group at the average age of 13 months. It will be remembered that 34 per cent. of this third control group showed marked or moderate clinical deformities. Whether the treated group at 25 months will show the same degree of rachitic deformities as this control group now does, remains to be seen. The antirachitic treatment given to the group of 103 infants has successfully held the disease in control. Even the five infants in whom the rickets progressed from a mild to a moderate degree showed deposition of lime salts. No treated infant has shown more than slight clinical evidence.

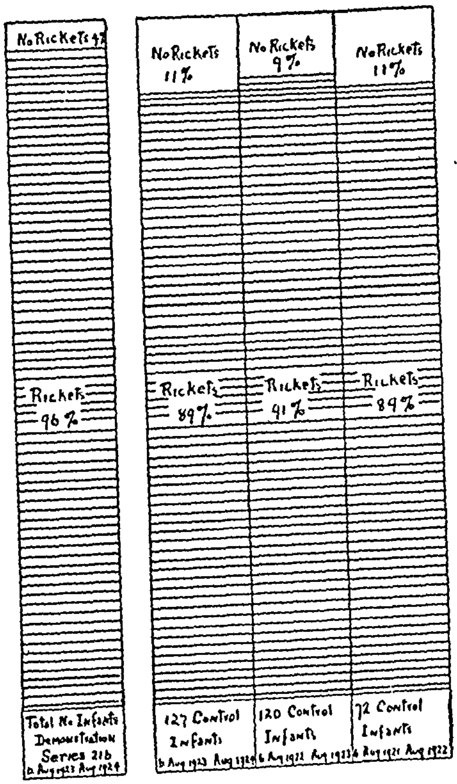


Chart 4.—Total incidence of rickets shown by roentgen-ray and clinical examinations in the 216 infants followed in the demonstration and in three control groups.

The extraordinary chronicity of rickets has been striking in our series of roentgenograms. The evidences of rickets first seen in the second or third months of life may be followed month after month even to the end of the first year or later. If the infant is under treatment, evidence of lime salt deposit as well as the evidence of active rickets may be seen; the process finally becomes low grade and sluggish and, though constantly present, is controlled. If the infant is not under treatment, the roentgen ray shows increasing and accumulating evidence of disease month after month, until the well known picture of marked rickets is seen. Lime salts apparently can be deposited in one part of the cartilage of a growing bone when they are not deposited in other parts. Rickets and repair of the rachitic process go on hand in hand for months and in some cases for years.

That rickets is intimately associated with growth is well known, and that it should appear at the time when most active growth is taking place, namely, the first four months of life, is not extraordinary. The rate of growth of the infant influences the early development of the disease. Large, rapidly growing breast fed infants and very fat infants uniformly show definite evidence of rickets. It is an uncommon thing to find a healthy vigorous breast fed infant who does not show rickets by roentgen-ray examination. Premature babies, who grow exceedingly rapidly, are notoriously rachitic. Malnourished infants frequently show small, slender bones with little or no rachitic change. If any two groups of infants show the need of early antirachitic treatment more than others, they are the large, rapidly growing breast fed infants and premature babies.

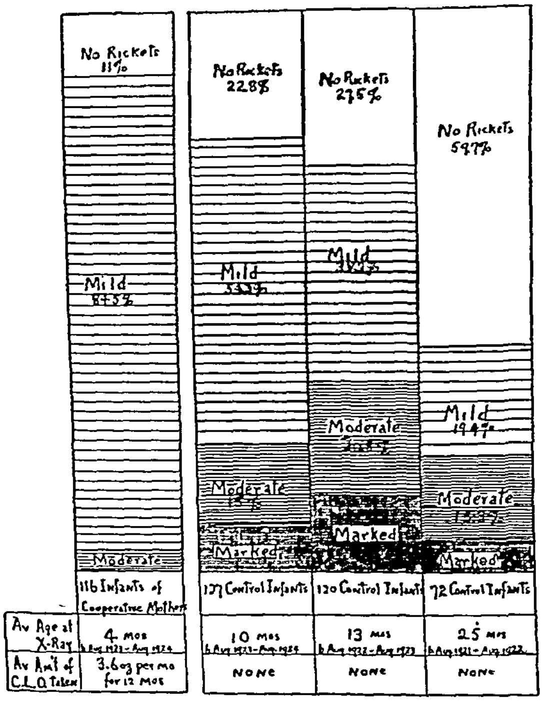


Chart 5.—The severity of rickets found by roentgen-ray examination in the 116 infants who took regular antirachitic treatment and in three groups of infants who took no cod liver oil. The absence of marked rickets in the group under treatment may be noted. Since the roentgen-ray diagnosis is based on the evidence of rickets at the growing ends of the radius and ulna alone, and not on long bone deformities, the amount of "no rickets" increases with age.

Our investigations have shown that a slight degree of early rickets is well nigh universal in our climate and in our state of society. The very intimate association of rickets with growth, its early appearance regardless of season, and its universality raise the question, which, however, I am not yet prepared to answer, whether this slight degree of rickets must not be considered normal. Before this question could be answered, it would be necessary to study the amount of rickets existing in a group of young infants born and living in the tropics.

89 Dixwell Avenue.

ABSTRACT OF DISCUSSION

DR. EDWARDS A. PARK, New Haven, Conn.: The point that Dr. Eliot raised is of the greatest importance; namely, that almost all infants who are thriving show slight degrees of rickets. The possibility which she has suggested that this mild degree of rickets is physiologic and means merely that the impetus of growth is greater than the power to calcify is of great interest. Before one can think that this slight degree

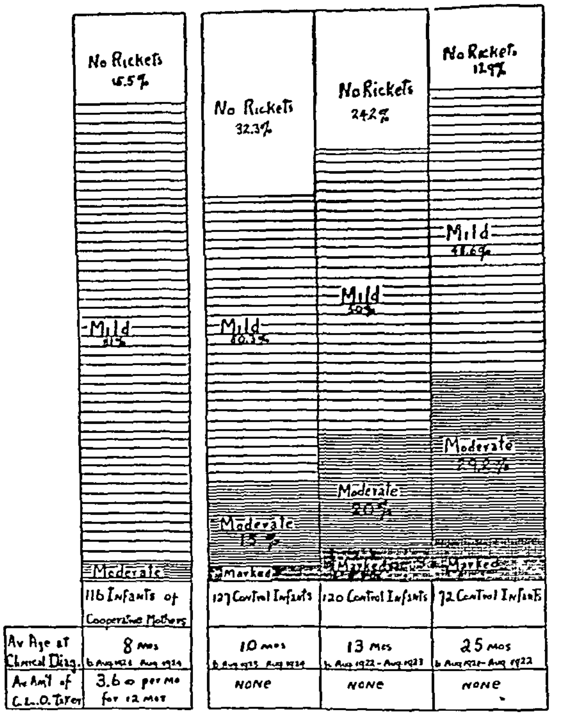


Chart 6.—The severity of rickets found by clinical examination in the 116 infants who took regular antirachitic treatment and in three groups of infants who took no cod liver oil.

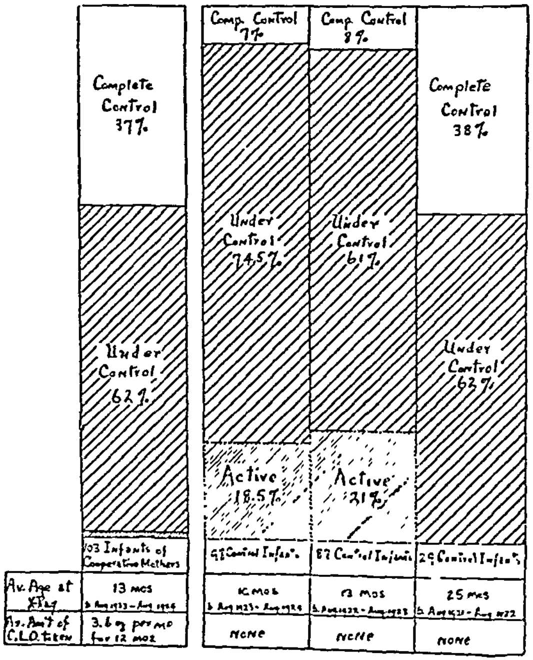


Chart 7.—The degree of activity and control of rickets in a group of 103 infants receiving antirachitic treatment, and in three groups of infants who received no cod liver oil.

of rickets, which is detectable by means of the roentgen ray, is physiologic, proof of its existence must be at hand in infants living in distant parts of the earth under different conditions of food and climate and of different racial origins. Another point of great interest, which has developed in the course of Dr. Eliot's work but has not been brought out in her paper, is that rickets goes on in many children for months or perhaps for years, neither progressing to extreme states of development nor disappearing. In infants suffering from rickets in this chronic form, it is necessary to think, lime salts are being deposited in some places in the cartilage and are not being deposited at all in other places close beside them. Students of rickets have long maintained that the disease was subject to relapses and that lime salts would be deposited for a time and then cease to be deposited and then be deposited again. But Dr. Eliot's work shows that in the cases of very many children lime salts are incompletely deposited all the time for periods of months, and, doubtless, in some children, for years. Dr. Eliot's work is going to add greatly to our knowledge of rickets and also to our knowledge concerning other things. It will supply much information concerning the anatomic changes in bones, which are responsible for abnormalities in the shadows as seen in roentgenograms. It will add much to our knowledge concerning the growth of bones. In regard to the use of the radius and ulna for the detection of early changes of rickets by means of the roentgen ray, small bones, which grow rapidly, will always show evidences of rickets before large bones will show them. The bones of the arm are superior to the bones of the leg for the diagnosis of rickets in its incipient stages. Rickets can be demonstrated by means of the roentgen ray at the cartilage shaft junction long before it can be recognized in the shaft itself. The lower end of the ulna will show rickets earlier than the lower end of the radius, though both bones will be found to be affected to the same degree by the rachitic process when looked at under the microscope. Theoretically, it is possible to divide cases of rickets into four groups according as the end of the radius and ulna are or are not affected. In the first group, the ulna alone shows rickets; in the second group, the lower ends of both ulna and radius show rickets; in the third group, the lower ends of ulna and radius and the upper end of the radius show rickets; in the fourth group, both ends of the radius and ulna show rickets. Practically, however, such a method for estimating the severity of the disease is not of great importance because of the difficulty in determining the slight involvements of the upper ends of the radius and ulna.

Dr. J. Victor Greenbaum, Cincinnati: Through the kindness of Dr. Park and Dr. Eliot we have been able to get at the nub of our problem without concerning ourselves too greatly with the racial types, age, etc., since all of these factors have been so ably studied in New Haven. Briefly, our problem has been to study the effect of diet during pregnancy on the infant. The pediatric department and the department of nutrition of the University of Cincinnati, with the Babies' Milk Fund Association, have collaborated in the work. We have worked about eight months thus far with a group of pregnant mothers who have had one or more children affected with rickets. Dietitians, under the supervision of the professor of nutrition, are sent three or four times a week into the homes in order to give the mothers directions as to the proper foods to eat and how they should be cooked. In addition we supply oranges, cereals, milk, green vegetables and eggs gratis to these mothers in order to balance their diets when their food is found inadequate with respect to calcium, phosphorus, iron, carbohydrates, proteins, fats and calories. Calcium and phosphorus tests on the mother's blood and roentgen-ray examinations of the babies are made from time to time. We hope to have results to report at the time of the next meeting.

Dr. May G. Wilson, New York: A similar study is being conducted at the New York Nursery and Child's Hospital. Our results are in close agreement with those reported by Dr. Eliot. We have been able to examine the concentration of the calcium and inorganic phosphorus in the serum of a group of about twenty infants developing rickets. These determinations showed values within the normal range, although the roentgen-ray evidence of early rickets was present. I should like to ask Dr. Eliot the criteria she used to establish a clinical diagnosis of rickets under 5 months of age.

Dr. C. G. Grulee, Chicago: There is one point which has not been sufficiently emphasized, and that is, that it requires a certain degree of good nutrition to produce rickets. It does not occur in scrawny infants. That was noted by Jundell two years ago. Marantic babies do not usually show severe rickets.

Dr. C.-E. A. Winslow, New Haven, Conn.: It is, of course, too soon to speak of the results of this study with finality. There are two, points, however, that should be emphasized: First, there is a condition of physiologic rickets that is essentially a normal growth process; second, this process can be checked and prevented from becoming pathologic by proper treatment. The first point is important. We have found in the medical examination of the school child that deviations from an ideal condition of health are exceedingly common. Also in connection with the draft examinations we heard a good deal about the physical defects and the 12-year mentality of the draftees. In interpreting such data we must keep in mind the difference between the normal and the ideal, and remember that any deviation from the ideal is not necessarily pathologic. We must allow a certain latitude in testing for physical and mental weakness. The results in checking the development of physiologic rickets into pathologic rickets are most encouraging. I suspect that when the statistical data are fully studied the effect of the cod liver oil treatment on other diseases than rickets will be of much interest. I look for a substantial reduction in tuberculosis and other conditions among the members of this group of carefully supervised infants. The general line of research pursued by Dr. Eliot and her associates promises to be of peculiar value. In the past we have either studied a few selected clinical cases with great care or have based our conclusions on the statistics of a normal uncontrolled population. In this New Haven demonstration we have both statistical and clinical methods, in combination, on practically all the babies born in a selected district of the city. This combined clinical and statistical method promises to throw much light on many important problems of medicine and of public health.

Dr. Jules M. Brady, St. Louis: I should like to ask Dr. Eliot whether she has ever had unpleasant symptoms following the administration of such large doses of cod liver oil to new-born infants. It has been our experience that it was necessary in such young infants to be extremely careful, as at times, serious looseness of the bowels was encountered.

Dr. Effa V. Davis, Chicago: In regard to the early determination of rickets, Dr. Greenbaum raised a point that I have had in mind for some time as to whether the breast milk may not at times be carrying the burden of rickets. Last summer in London, at the physiologic laboratory department of King's College for Women, I met Gladys A. Hartwell, who was experimenting on the diet of rats with reference to the condition of their nursing young. Her work shows the evil effects of an excess of protein in the diet of the mother rats on their nursing babies, together with other interesting facts well worth studying. The diet of the nursing mother has a much greater effect on the nourishment of her child than has been realized. I hope the work undertaken in Cincinnati will go far in elucidating this problem. The work on rats was most interesting and was carried on along many lines by Miss Hartwell.

Dr. H. J. Gerstenberger, Cleveland: I should like to know what kind of cod liver oil was given, and also whether Dr. Eliot noted any effect of the type of diet on the quantity of cod liver oil needed in the prevention of rickets. From a very extensive experience during the last eleven years in feeding cod liver oil in the form of a food having a protein, carbohydrate, fat and mineral content corresponding to that in human milk, I know that about 3.5 c.c. of Newfoundland cod liver oil will cure rickets, as checked by the roentgen ray and by the determination of the calcium and phosphorus content of the blood serum. Therefore, I believe one is justified in assuming that a food that can cure rickets will prevent this disease; in other words, about 3.5 c.c. of cod liver oil used per quart of food of the composition indicated has been sufficient to prevent rickets.

It is my impression that a higher carbohydrate and protein content in the mixture might raise the amount of cod liver oil needed to prevent rickets.

Dr. John A. Foote, Washington, D. C.: Dr. Eliot has shown the true scientific critical spirit in her investigations by asking whether or not this condition could be regarded as physiologic, and suggests that a study of tropical children might be useful as a control. But in a study of children under tropical conditions it would be very hard to standardize according to the New Haven demonstration. Recently I attended a private view by the National Geographic Society of motion pictures taken on the Solomon Islands. The explorer had reproduced the dances of the natives, a sort of daily dozen, and the many views of nursing children showed the native babies to be unusually robust and well nourished, with splendid physical development, and no suggestion of rickets. In the numerous pictures shown of groups of older children from 6 to 10 years of age, I have never seen such perfect physical perfection as regards posture and bone and muscle development. I asked the explorer what the diet of the people was, and he said it consisted of fish and yams. I would suggest that, if ideal control experiments should be considered, we include the natives of the Solomon Islands in our investigations, since clothing seems to have no part in their philosophy of life, and they subsist on a very restricted diet. I have been in touch with Dr. Eliot's work and can appreciate her difficulties in attempting work with dispensary patients. In the early days of our studies on the effect of treatment with cod liver oil on the calcium and inorganic phosphorus of the serum of rachitic children, we attempted to study dispensary patients in order to avoid the expense of maintaining these patients in the hospital for weeks at a time. Our results were so irregular that we soon gave up the attempt and confined our studies to hospital patients. Only then were we able to establish a definite relationship between the activity of the rickets and the blood findings. Cod liver oil or any other antirachitic agent must be given in sufficient quantity regularly until a diet that itself contains an adequate amount of antirachitic factor can be taken. Dr. Eliot's work presents an opportunity to study a question that is of considerable interest from the standpoint of the pathogenesis of calcification; namely, Does the increase of the inorganic phosphorus concentration of the serum that follows antirachitic treatment precede and determine calcification, or does it follow the deposition of fresh calcium phosphate in the rachitic cartilage and metaphysis?

Dr. Julius Hess, Chicago: In a study of the diagnosis of the fetal age by roentgenograms, I was able to demonstrate osseous centers in specimens clarified by sodium hydroxid and glycerin at an average of seven to ten days sooner than they could be seen in roentgenograms. Has Dr. Eliot estimated how soon calcium deposits can be seen in the plates after treatment is started? Calcium deposits of certain density are necessary before they are seen in the roentgenograms. If these are visible in three weeks after treatment is started, the bone changes must start very early; in other words, healing is earlier than roengen-ray evidence. In our premature work we had to start to feed cod liver oil in the third or fourth week after birth to prevent rickets. I would like to know at what age Dr. Eliot thinks cod liver oil should be started for prophylactic purposes in the breast fed infant.

Dr. Martha M. Eliot, New Haven, Conn.: We also are studying the diets of pregnant mothers in New Haven, but our work is not yet ready to be reported. We have done no blood chemistry in connection with our study. It is not possible in a preventive study of this sort to take repeated specimens of blood for examination and still keep the cooperation of the mothers. I think the clinical diagnosis of rickets under 5 months of age is a most difficult problem. Whether palpable costochondral junctions are sufficient evidence on which to make a diagnosis of rickets is debatable. When the costochondral junctions or epiphyses are enlarged, or cranial bosses present, and when there is moderate or marked craniotabes, we have made a clinical diagnosis of rickets. We have not made a diagnosis on one finding alone, except in the case of marked craniotabes. We have not seen any serious digestive upsets from the use of cod liver oil. There has been no diarrhea and only one or two cases of true vomiting. If the oil is not given with care the baby may spit out that which is not yet swallowed. We have had more frequent complaints of constipation than of any other disturbance following the administration of cod liver oil. On the whole the babies took the oil well. The cod liver oil used has all come from the same source. It is an American product. Two white babies who developed second degree rickets were given oil bought at drug stores and not the oil supplied at the office. Dr. Hess asked how early we note rickets by roentgen ray. We have seen it in infants under 1 month several times. We have made no studies to determine how soon lime salts are deposited after cod liver oil is started because the roentgen rays are used only at monthly intervals. From 75 to 80 per cent. of our series of infants were breast-fed. Some had mixed feeding. We have not found that there was any variation in the amount of cod liver oil required for children on different types of diets. We shall have more data on that point by the end of the study.

PULMONARY TUBERCULOSIS

ITS SURGICAL TREATMENT *

EDWARD ARCHIBALD, M.D.

MONTREAL

I think it is fair to say that the general practitioner, even the general internist, and perhaps still more the general surgeon is still unfamiliar with the fact that certain patients with pulmonary tuberculosis, whose future is otherwise hopeless, can be, by operation, not merely improved as to their distressing symptoms, but, to all intents and purposes, practically cured. It is true that, to the expert in tuberculosis, the use of the word cure is anathema. At most he allows the term "permanently arrested." And as concerns the type of case here under consideration he is doubtless justified; for these patients are all at an advanced stage of the disease—at such a stage, indeed, that one cannot under any circumstances consider the word "cure" in its strict sense. Nevertheless, many of them are brought by operation to this level—that cough is abolished, sputum disappears, fever and pulse rate become normal, and the patient is able to do a reasonable amount of work, from half a day to a whole day. He becomes once more an ordinary member of society, and is under no necessity of taking treatment, provided he observes the ordinary rules of health, and takes reasonable care of himself. When this state has been reached and maintained for a year, the result is called by Sauerbruch, the great protagonist of surgical treatment in this disease, a "practical cure." This being understood, no harm is done by the use of the term.

There are certainly at this moment thousands of patients scattered throughout this continent, condemned to sanatorium life, practical exiles from home, who would be greatly benefited, and many of them restored to ordinary home life, if their medical advisers were aware of the value of operation; and whereas the operations heretofore reported in America number at present no more than between one and two hundred, I venture the prophecy that within ten years that number will run up to the thousands. One danger, however, is obvious; a danger that is particularly to be feared in the field of tuberculosis. Every new remedy for tuberculosis is heralded far and wide, especially in the public press; the patient, usually familiar with his disease,

---

* Read before the Section on Surgery, General and Abdominal, at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

usually quite aware of his outlook and always ready to catch at straws, comes to his physician for a trial of the new remedy, in this case of the new operation, and declares his willingness to take chances and assume risks. Consequently there is a constant tendency on the part of the patient, or of his physician, or, possibly still more so, of the surgeon to "give the patient his chance," to widen the indications, so that the unsuitable case is not infrequently accepted for operation, and the result may be disappointing to everybody. It is therefore extremely important, if this branch of the therapy of tuberculosis is not to suffer undeserved discredit, that a proper selection of cases for operation should be made.

Table 1.—*Summary of Cases Treated*

Total, 68 cases, divided as follows:	
1. Extrapleural thoracoplasty, posterior	
(*a*) *Total (resection of ribs from top to bottom)*	41
(*b*) Partial (resection of half the ribs, maintaining usually a pneumothorax over other half of lung)	9
(c) Posterior thoracoplasty, with addition of apicolysis in front, in three stages	6
2. Phrenicotomy (as the only operation)	3
3. Cutting intrapleural adhesion to improve an existing pneumothorax	4
4. Pyopneumothorax	5

I cannot in this place go deeply into this aspect of the question, which might of itself form the subject of an entire paper; and I would refer those interested to the recent exhaustive paper by Dr. Alexander.[1] Briefly, the best case for operation is the "good chronic" in whom the disease is practically confined to one lung, with only slight and old trouble in the other lung (the other lung is practically never intact), in whom the evidence of resistance and of Nature's attempt to heal through fibrosis is seen in a general contraction of the diseased lung, pulling the rib spaces in, the diaphragm up, the heart, mediastinum and trachea across; in whom artificial pneumothorax has been tried and found impossible or insufficient because of pleural adhesions; and in whom no evidence of progressive spreading tuberculosis in other organs, or of any other serious disease, can be found. The patient has usually been ill for several years. Destruction and repair have in most cases gone hand in hand so that the lung shows both fibrosis and some cavitation. He is frequently afebrile and can be allowed a certain amount of exercise, provided he avoids fatigue. Nevertheless, his outlook as a good chronic patient is apt to change at any time on the occasion of a flare-up. He is living in constant danger of an extension of the disease, and his ultimate outlook is certainly not good.

Such, briefly, is the "good chronic"; but the indications need not be set quite so narrowly as this. There are also chronic cases that are not so good, whose progress downward, at any rate for several months, gives cause for immediate alarm. The patient is confined to bed or to very little exercise. He may or may not have fever and a fast pulse. His cough is usually troublesome. His sputum runs from very little up to very large amounts, but always contains bacilli. He is apt to have occasional flare-ups, and has come generally to a stage at which he himself, as well as his physician, views the future with alarm and with a quite definite sense of hopelessness, knowing that sooner or later there is only one end to it. The progress of the disease is definitely downward, and the patient is "slipping" slowly or rapidly. Provided, however, that the trouble remains chiefly unilateral and there is no active disease in the good side, operation is still to be considered, and is still attempted with a gratifying measure of success.

THE OPERATION OF EXTRAPLEURAL THORACOPLASTY

What, then, is the operation proposed, and what is its rationale? The operation consists in a resection of varying lengths of the ribs, posteriorly, from the first to the tenth or eleventh. It is done subperiosteally, and the parietal pleura should not be broken through. It is therefore called an extra pleural thoracoplasty. It should be done in two stages at least, occasionally in three, in order to avoid certain dangers and to keep the immediate mortality low. It is done posteriorly, because in this region the spring of the ribs is such that rib resection allows the anterior ends to fall farther in, and reduces the lung volume more than if it were done anteriorly. In favorable cases the reduction in the capacity of that side of the chest amounts to well over 50 per cent. As to the anesthesia, my own preference is for gas-oxygen combined with procaine, 0.5 and 1 per cent.

The rationale of the operation may be summed up in two words, rest and compression; and of the two it is probable that rest is the more important. Nevertheless, a large part of the good effect attained is certainly due to the mechanical factor of compression of the lung. Such compression, or such collapse (the terms are interchangeable), is the only thing that can bring about a reduction in the size of cavities and their ultimate disappearance, with cure through scar; otherwise the walls of cavities are held open by pleural adhesions and by the framework of the fibrous bands that run in all directions through the lung to the pleura. While this mechanical factor, that of the falling in of the ribs and consequent compression of lung, is what stands out clearest in the operation, on a superficial view, it is no less obvious that the removal of sections of all the ribs gives rest to the lung by reason of the simple fact that the operation cuts an important link in the chain of the respiratory movement. Inspiratory expansion of the chest wall is bound up with an intact thoracic skeleton. When the ribs are cut, rib movements become impossible, and therefore inspiration and expiration on that side are impossible save for diaphragmatic movement. Any flow of air into or out of that lung becomes largely passive. It is "pendulum air" chiefly, and represents a small part of the air that goes into and out of the

Table 2.—*Deaths Ascribable to Operation of Posterior Thoracoplasty*

		Number of *Cases*	Number of *Operations*
Total	47	56	104
Partial	9		

	Deaths Cases	Per Cent. of Cases	Per Cent. of Oper.	Cause of Death
1st week	1	2	1	Acute lobar pneumonia of good lung on 8th day
2d week	1	2	1	Cardiac failure on 12th day
3d week	1	2	1	Streptococcal abscess under scapula, 21st day
7th week	1	2	1	Tuberculous pneumonia of good side
Total	4	8	4	

In six of these fifty-six, an apicolysis was done at intervals of six weeks to two and one-half years after the posterior thoracoplasty. Of these three patients died within two weeks. All three had very advanced cavitation with fibrosis throughout the lung and were in desperate condition. The operation of apicolysis in such cases should be avoided.

---

1. Alexander, J.: Surgery of Pulmonary Tuberculosis, Am. J. M. Sc. 168: 1 (July), 268 (Aug.), 412 (Sept.), 574 (Oct.) 1924.

sound side. As a result, the lung is given rest, and rest is the cardinal principle of the treatment of tuberculosis anywhere.

Not only this, but the absorption of toxins from tuberculous tissue, through the lymphatics, it is asserted, is usually stopped by the mechanical compression of the diseased lung. It is difficult otherwise to explain the very rapid disappearance of fever and rapid pulse, which is frequently seen after operation.

TABLE 3—*Late Deaths Not Ascribable to Operation of Posterior Thoracoplasty**

In second month (from typhoid contracted in hospital after good recovery from two-stage thoracoplasty)	1
During first year (from progress of disease)	3
During second year (from progress of disease)	4
During third year (from progress of disease)	1
Total	9
During first two weeks from apicolysis, a third operation following the two stage posterior thoracoplasty *	3
Total number of deaths	12
Total number of cases	56 = 21%

* *Three cases following the operation of apicolysis are not* included in deaths ascribable to the operation of posterior thoracoplasty, which the patients had previously borne without trouble; they are rather included in this table in "deaths from progress of the disease," as they were in a desperate condition and would have died before long without operation. The point is that the standard operation to be advised is a posterior thoracoplasty, which is sufficient in nearly all cases; while apicolysis in *bad cases not benefited by the posterior operation* is to be discouraged, because it carries too high a mortality. It would be unfair to burden the mortality figures of the standard operation with the high mortality of a third and somewhat experimental operation, carried out as a last resort, and which is no longer done in such hopeless cases. Such patients, without the operation of *apicolysis*, would have died of the progress of their disease, and the mortality figures for which these deaths are responsible should, therefore, come more properly under the category of "progress of disease"

Certain contraindications have to be kept in mind. Some of them have already been set forth in the brief recapitulation of indications. The chief one is, to my mind, the evidence of active, progressing disease in the good lung. It is in this respect chiefly that, as respects indications, thoracoplasty differs from artificial pneumothorax. The latter is a measure that allows of a retreat on the first threat of an unfavorable reaction, while from thoracoplasty there is no drawing back. Air can be withdrawn, but ribs cannot be replaced; consequently, a pneumothorax can be tried in cases of bilateral disease, even when that disease is active, but thoracoplasty should not be attempted. At the most, one may cut the phrenic nerve on the worse side.

A second contraindication lies in the presence of extensive tuberculosis in other organs. It has been said hitherto that the coincidence of intestinal tuberculosis forbids the operation, while that of laryngeal tuberculosis does not. This attitude is correct only so far as the coincidence of disease in these organs represents a lack of resistance on the part of the patient and a generalization of progressing disease; but if in a given case either intestinal or laryngeal tuberculosis is obviously chronic, if the patient's resistance seems sufficient to hold within bounds these extraneous manifestations, then there is no contraindication to thoracoplasty. I am able to report several good results in spite of evidence of intestinal or laryngeal involvement.

A more serious contraindication is the presence of chronic and serious nontuberculous disease, such as a nephritis or a hepatic cirrhosis, or a serious cardiac lesion. Such cases should not be accepted for operation.

RESULTS

We may now turn to a consideration of the results of thoracoplasty. In the time at my disposal it is not possible, nor is it perhaps necessary, to discuss the results that have been obtained in Europe and in this country, and I shall therefore confine myself to a report of my own cases. Until recently the literature in English concerning this subject has been comparatively scanty, but Alexander's recent comprehensive article, which reviews the entire literature makes this information now available for the English reader. I have arranged my results in tabular form, but I may add certain remarks of an explanatory and amplifying character.

In a general way one must qualify the somewhat bald figures which are suitable to a statistical report in the sense that any set of figures for one year will have to be changed in succeeding years, because patients suffering from pulmonary tuberculosis themselves change from year to year. One who is here set down as greatly improved may later rise to the level of a practical cure, or, on the contrary, may have to be set down as a late death. Again, in judging results as published by different surgeons, the personal equation has to be considered. One may judge as improved what another would call greatly improved; or a patient may be set down as a practical cure when in somebody else's opinion he is no more than greatly improved. Allowing for this, it is nevertheless true that the benefits of the operation far outweigh its risks. The proportion of practical cures and improvements runs well over 60 per cent., while its operative mortality is now surprisingly low. One has to reckon, it is true, with a late mortality attributable almost altogether to the progress of the disease in the other lung, or elsewhere, of around 30 per cent. But it is fair to say that nearly all the patients representing this 30 per cent. would have died in any event, and without operation would very possibly have died sooner than if no operation had been done, because, as a matter of fact, the usual result, even in unfavorable cases is an improvement lasting for several months. As proof of this, one might point to the fact that in only three of my series of fifty-six cases could it be said that the operation had apparently been the cause of an extension of the disease in the other lung.

TABLE 4—*Results in Patients Surviving Operation Over Three Weeks (Operation, Thoracoplasty, Total or Partial, or with Apicolysis Added)*

				Deaths	
Operations Over One Year, Up to Twelve Years Ago	Practical Cures	Greatly Improved	Improved	1st Three Weeks	2d Month On
42 cases	12 = 29%	12 = 29%	4 = 10%	2 = 4.76%	12 = 28%
Under One Year	Greatly Improved	Improved	Stationary or Worse		
14 cases	3 = 21%	7 = 50%	2 = 14%	1 = 7%	1 = 7%

I should like to call attention to the outstanding fact of the surprisingly low mortality resulting from the operation *per se*. It is to be understood here that I speak only of the standard posterior thoracoplasty in two or three stages, an operation which now is generally accepted as the standard procedure applicable to the vast majority of cases. In this sense I exclude three deaths in a series of six patients on whom I did an apicolysis as a third operation, subsequent to a two-stage posterior thoracoplasty. These three patients who died were extremely advanced cases, with lungs riddled with cavities, from disease lasting ten years or more, and the apicolysis was done as a last resort. I am now of the opinion that in such desperate cases the operation of apicolysis is indefensible, and that, when posterior thoracoplasty has failed to bring about marked improvement, the chances of benefit from an added apicolysis are too small and the risk too great to justify it. At present I reserve this operation for good cases, in which there remains a residual apical cavity, while the rest of the lung is well compressed and the disease apparently halted, and in which there is nothing to fear from a chronic toxemia with probable myocarditis.

This being understood, it is to be pointed out that of fifty-six patients on whom posterior thoracoplasty was performed, not one died in the first day or two of operative shock; one died on the eighth day from an acute lobar pneumonia of the good side (and this was one of the two one-stage operations); one died on the twelfth day of cardiac failure, after the removal of the lower seven ribs, the operation being performed in a distant city without any opportunity of supervising the after-treatment; and a third died in the third week of a streptococcus abscess hidden under the scapula, the patient having been twenty years ill and in such a condition of advanced toxemia that I would not, with my present experience, accept him for operation. (The case belongs to 1913 and was the second of the series.) It is surely a fact of prime importance that an operation of this sort, still generally considered as formidable, and carried out on material that can well be designated as frail, should on analysis be found to involve so low a mortality as 6 per cent. in the first three weeks. And if one considers that in these fifty-six cases there were performed 104 distinct operations under general anesthesia, the actual risk involved in any one operative act is further reduced by half. One does not hesitate to advise a patient with a cancer of the colon, for instance, to submit to operation though the immediate risk is greater and the prospect of permanent cure less than in the operation of thoracoplasty. My point, therefore, is that the profession is no longer justified in characterizing this particular surgical procedure as unwarrantably dangerous or "experimental" or as to be advised only as a last resort. Nothing is more definitely proved than the extraordinary benefit derived from the operation in patients who are *still in* good condition; while, on the other hand, experience has shown no less conclusively that the chronic case that is allowed to drag on for years, with progressing destruction of lung tissue, arrives ultimately at a stage in which cavitation is so great that operation can accomplish no more than a very modest improvement, and is attended with a greater immediate risk. It is my opinion, to put the whole question briefly, that when a patient is judged to be a suitable case for artificial pneumothorax and this is thereupon found impossible or insufficient, because of pleural adhesions, then, at that very moment, without further delay, a thoracoplasty should with rare exceptions be advised.

TABLE 5.—*Causes of Death*

I. During Hospital Stay:		
1	Streptococcus abscess under scapula after first stage; twenty-first day (in 1913)	
2 3 4	Following apicolysis, having previously stood posterior operation well; old cases; extreme fibrosis and cavitation; sixth, fourteenth and fifteenth days after operation; purulent bronchitis; cardiac failure; toxemia	
5	Acute tuberculous pneumonia of good side, seven weeks after operation	
6	Typhoid fever, after good recovery from thoracoplasty	
7	Cardiac failure on twelfth day after operation; poor condition from severe hemorrhages and prolonged toxemia; tenth to fifth ribs resected	
8	Lobar pneumonia of good side, on eighth day, after one-stage operation	
II. Later Deaths:		
9	Pyothorax, developing in partial pneumothorax one month after operation	
10	18 months after operation	All died from progress of disease, usually in other lung, or miliary; two with hemorrhages; all except two showed improvement at first
11	2 years after operation	
12	3 years after operation	
13	2 years after operation	
14	1 year after operation	
15	3 months after operation	
16	9 months after operation	

These statements need modification in one particular. Excellent results, to judge from the figures published in the literature, can be expected only from those, internists as well as surgeons, who have devoted serious study to the principles involved and to the details of the technic, for it cannot be said that the operation stands on its own feet as a mechanical procedure, standardized for all cases, such as the operation for hernia or for any other ordinary lesion. Team work is essential. The selection of the cases must belong in the first instance to the physician, but the surgeon also must acquire the ability to estimate the resistance of any given patient to the procedure proposed. I expect, and must always expect, from the physician, who has usually observed the patient over months or years, an estimate of the patient's resistance to his tuberculous lesions, and an estimate of the prognosis as to life if the patient is not to be operated on. But in addition to this the surgeon must be familiar with many things, not merely in the carrying out of the operation, but also in the preoperative and postoperative treatment. Length of ribs to be resected, and the number of ribs to be removed, vary according to indications from case to case according to the previous estimate of the patient's strength and according to the condition of the lungs as discovered with the removal of each rib. The condition of the heart and respiration before, during and after operation are of the greatest importance, as is also a knowledge of the physiology of paradoxical respiration and pendulum air and flapping mediastinum. The postoperative care has to be meticulous, precise and informed. One must have special knowledge as to posturing the patient; as to bandaging to support the partially unsupported thorax; of stimulants and sedatives; of how much to encourage coughing, how much to discourage it, and how much to prevent it.

Concerning the question of early mortality, there is no doubt that this particular operation, carried out as it is on patients frequently enfeebled by chronic toxemia, demands a great deal more of the surgeon, both in knowledge and in personal oversight, than do the more ordinary operations of surgery. In few other operations, at any rate, do the results reported by various surgeons differ so markedly; and I can only conclude that some operators lack either the necessary knowledge or the necessary conscience, or the necessary time and devotion, while others possess all these.

As to the late mortality, I have to record that one patient died in the seventh week from an acute tuberculous pneumonia of the good side, after having gone through the two-stage thoracoplasty without apparent trouble. This case, together with the one previously noted of acute lobar pneumonia, represent the only ones that force one to consider the danger of aspiration pneumonia. This means that in 104 operations an aspiration pneumonia, if it was such, occurred only in 2 per cent. In one of these the average sputum before operation was only 32 c.c. daily.

Another patient died in the seventh week from typhoid, contracted in the hospital, after a two-stage thoracoplasty which was perfectly well borne. Our clinical judgment was that he was likely to turn out an exceptionally good result.

During the first year, three died; during the second year, four, and during the third year, one; all from the progress of their disease. All except two showed early improvement. In the whole list of those surviving the first two months, one can say that only two have been made worse by the operation. Of these, one was an instance of acute progressive disease, with early active trouble in the better side, in which only a first-stage operation was done, against one's better judgment but because of exceptional circumstances; and at present, six weeks after the operation, the disease is rapidly advancing in the better lung. The other case was one of six years' duration, with recent hemorrhages, necessitating a transfusion ten days before admission, with a loss of 35 pounds (16 kg.) in the past five months, and with night sweats and fever. She was operated on during August and September, 1924. There was some disease in the apex of the other lung, possibly active. After a marked initial improvement, the disease has lately been found to be spreading in the better lung. It is at least doubtful whether operation had any part in this aggravation.

In considering the good results, it is important to define what is meant by "practical cure," "great improvement," and "improvement." The definition of the first of these, according to Sauerbruch, has already been given in the earlier paragraphs of this paper. The term "great improvement" means a very marked diminution in cough and sputum, with, in nearly all cases, the disappearance of bacilli; the abolition of fever; a decided lessening of the pulse rate, and such an improvement in general well being as to enable the patient to take some exercise and enjoy the quiet pleasures of life, though still obliged to continue a modified course of treatment. This definition does not apply to the patients operated on less than a year ago. These obviously are still observing a rigid regimen in bed or in chair, which is imperative in all cases for the first six to twelve months.

The term "improvement" is loosely applied to those whose condition is decidedly better than it was, but is not so good as to bring them into the next higher class.

PHRENICOTOMY AND THE CUTTING OF PLEURAL ADHESIONS

Before concluding, I should like to discuss very briefly two subsidiary questions about which a good deal has been written. A cutting of the phrenic nerve in the neck, which is a simple and a safe operation, paralyzes the corresponding half of the diaphragm so that it rises and assumes a stationary position from 1 to 2 inches above its previous level. This is believed to afford a certain measure of rest, chiefly to the lower lobe, but also indirectly and in less degree to the upper lobe. It has been advised by Sauerbruch in doubtful cases, as a test of the resistance of the better lung to a slight extra functional strain, when one suspects that the better lung may not be able to stand a thoracoplasty. As to this point, my experience is yet too small (only four cases) to allow judgment. It has also been advised, by Alexander, Lilienthal and others, as a routine preliminary operation to thoracoplasty. I used it only once in this sense and could find no particular benefit from it. On the whole, my experience with thoracoplasty does not seem to indicate any particular necessity for complicating the procedure in this way, though I admit that in risky cases it might be a distinct advantage.

Concerning the operation of apicolysis, my position has been sufficiently indicated in earlier paragraphs. There remains to discuss the procedure of Jacobæus in the cauterizing, with the aid of a thoracoscope, and a galvanic cautery, of band adhesions running from lung to parietal pleura, restraining the good effect of an otherwise complete artificial pneumothorax. It has appeared to me from the first, in spite of the very favorable interest aroused in this country by this work of Jacobæus, that the method was too blind, too apt to be followed by hemorrhage and infection. I have preferred to make a small open incision, hook up the band, ligate doubly and cauterize between. This has been done successfully in three cases, while in two the nature of the adhesions encountered made the procedure either impossible or too dangerous. In such cases I prefer to give up the pneumothorax and substitute a thoracoplasty.

McGill University.

ABSTRACT OF DISCUSSION

Dr. Charles D. Parfitt, Gravenhurst, Ont.: During the last seven years I have referred fifteen patients for thoracoplasty to Dr. Archibald. There was no operative mortality from the twenty-eight operations these patients sustained. The procedure was undertaken more than four years ago in four cases. In one of them, after temporary material improvement, death followed in nineteen months from complications. A more recent case ended fatally from typhoid three weeks after the second stage operation. The other patients have been materially improved in health, and, with probably one exception, are enthusiastic about the benefits obtained and consider the hardships incurred well compensated by the results. These were advanced cases, and all had had some sanatorium treatment. In nine cases, pneumothorax had been unsuccessfully attempted. Three had lost a previous pneumothorax, and three had a partial pneumothorax at the time of operation. Material improvement can be recorded in 86 per cent., with loss of tubercle bacilli in 72 per cent. Five were practical cures, eight showed material improvement, and two patients died. My personal experience certainly justifies faith in the value of this operation. Notwithstanding some disappointment from the patient's standpoint, because sputum may not entirely cease, greater safety and comfort have been obtained. This irrevocable operation with its risks demands a more stringent selection of cases than does artificial pneumothorax. Its possibilities should be appreciated. Intimate cooperation is essential between the internists and those surgeons who are willing to develop the necessary judgment and skill for making the operation and its results successful. In the United States, nearly 100,000 people die annually from pulmonary tuberculosis. At some period of their illness probably 3 per cent. of them are suitable for thoracoplasty. About 2,500 patients should, therefore, be operated on each year. These will enjoy longer and more comfortable lives and, because of lessened and less infective sputum, should be much safer members of the community.

Dr. A. J. Ochsner, Chicago: More than 1,000 persons die every week in the United States of pulmonary tuberculosis. Quite a proportion can be saved if the principles brought out by Dr. Archibald can be applied. My own experience has been so satisfactory in the performance of this operation that I am sure that in all parts of the United States if there were cooperation among internists, tuberculosis specialists and surgeons, there would be an enormous saving of lives. The selection of patients is brought out definitely in this paper. The result of careful physical examination and especially of roentgen-ray examination makes the selection not too difficult to be safe. These cases form a class in which other forms of treatment do not succeed in curing the patient. Lung compression by means of gas will cure a considerable number of

Late in 1924, requests for information began to come in from county medical societies throughout the state. As a result of talks by those who had had experience with the work in Nassau County, the city of Hornell, with a population of 5,000, began a campaign for universalizing breast feeding with the beginning of 1925, and at the end of six months, presents a preliminary report showing 84 per cent. of its babies (as compared with Nassau County's 70.1 per cent.) still on the breast, and 98 per cent. breast fed for one month (as compared with our 90 per cent.). In March of 1925, Ithaca, a city of 20,000 population, began a similar campaign. Other requests have been coming in, and in each case the request has come from the county medical society or the local academy of medicine. So far, with but one exception, every one of these requests for information has been followed by a definite assumption of a program similar to that laid down in Nassau County. The movement is spreading throughout the state faster than any one had dared to hope. So much so, that between the time when the title of this paper, "Universalizing Breast Feeding," was handed in to the secretary, and the time of its reading, its meaning and its implication have completely changed. Six months ago, the "community" referred to was Nassau County. Today, in referring to the community in which breast feeding bids fair to be universalized, and at no very distant date, we dare to mean the great state of New York.

102 Hanson Place.

ABSTRACT OF DISCUSSION

Dr. Matthias Nicoll, Jr., Albany, N. Y.: Years ago I was a pediatrician, and I recall very distinctly that during my association of many years with one of the largest foundling hospitals in this country, most efficiently conducted and on whose staff were some of the most eminent children's specialists in New York City, not one infant, which from birth had been wholly artificially fed and remained in the institution, was sent out alive. On the other hand, the death rate among breast-fed babies, which constituted the majority, was exceedingly favorable. While we all recognize the fact that children's institutions of this kind present a special problem which exists to only a limited degree even among infants of the poorer classes living in their homes, the fact as presented seems to me a striking example of the life-saving properties of breast milk. In a recent survey made by the state department of health of a second-class city in New York State, very largely industrial and in which a great many women were employed in the various industries, some rather striking facts were brought to light regarding infant mortality. The figures were based on some thousand infant deaths during 1923. Approximately 30 per cent. of the deaths were among infants who were never breast fed, or for less than three months, constituting an infant mortality of 274. Twelve per cent. were breast fed from three to six months, with a mortality rate of 102, and 58 per cent. were breast fed for six months or longer, with an infant mortality rate of 3.4. The death rate from respiratory diseases was for the first group 64, for the second group 71, and for the third group 1.7 per thousand living births. As showing that breast feeding is not fashionable in these days, it was found that in those families in which the wage earners made from $15 to $25 a week, 68 per cent. were breast fed, as against only 58 per cent. of those in the higher income group. Breast feeding is not popular among native born women. It is kept up fairly constantly among the foreign born, and the habit can be revived among them with very little difficulty. Among American born women the task is apparently not so easy. It seems to me that the medical profession has not been guiltless in discouraging this natural and desirable method of infant feeding. There can be no question that with the comparatively recent development of scientific artificial feeding of infants the tendency of the medical profession, including pediatricians, has been to resort too readily to artificial feeding and with little or no attempt to encourage the mother to continue breast feeding. Dr. Richardson has shown what can be done by example, persuasion and hard work. The thought that breast feeding can be carried on for at least six months by the majority of mothers by very simple procedures, with which every practicing physician should make himself familiar, will probably be somewhat of a surprise to the average physician and unquestionably to a large number of mothers. The success of the breast feeding compaign which is now being taken up throughout the country depends on intensive instruction of individual mothers and convincing public demonstrations of the real value of breast feeding as a factor in saving infant lives and protecting them from a number of pathologic conditions to which the artificially fed infant much more readily becomes a victim.

Dr. Robert A. Strong, Hagerstown, Md.: Prior to 1869, the subject of artificial feeding was absolutely unknown. In that year Biedert, working under the inspiration of the chemical era of Liebig, began artificial feeding, which was rarely used, to the complete exclusion breast feeding before. It appears, then, that the feeding of babies with fabricated food is the result of modern civilization. I want to concur with Dr. Nicoll when he says that artificial feeding has done more to discourage breast feeding than any other factor. I am sure he will recall with me that up to a few years ago no program of a medical society was considered complete if it did not have at least one paper on artificial feeding of infants. More attention is being given breast feeding, however. One incontrovertible fact has been elicited and that is, regardless of the exact physiologic way that lactation begins, it depends for its maintainance on complete and regular emptying of the breasts. If the baby fails to do this in the act of suckling, it must be done otherwise. I am hoping that Dr. Richardson will demonstrate the technic of manual expression when he closes. This technic, learned to no small extent from the dairyman, is the keynote of the success with which supervised breast feeding is meeting in many sections of the country and which was demonstrated by ,Dr. Richardson in the Nassau County campaign. I want to endorse all that he has said. If a few more papers of this type appeared to broadcast such information, it is safe to assume that artificial feeding would soon become the curiosity that breast milk came near being before interest was aroused in saving it. I hope you will carry its message home.

Dr. Julius Levy, New York: It is hardly necessary to discuss the value of breast feeding. The important thing is to help to get it across. I think we should recognize in the propaganda of breast feeding two important things: First, that successful breast feeding is largely the mental attitude of the mother, rather than the nutrition of the mother. The placing of the emphasis on feeding of the mother has frequently made her feel that she could not nurse a baby. In order to establish right mental attitude, the proper time is before the baby is born. Permanent results are going to be obtained only by a well developed and organized program, and this should merely be the general program for maintaining the health and vigor of infants and children. That program must include prenatal feeding. The second group we have to deal with includes the obstetrician and pediatrician, and the midwives who deliver from 25 to 40 per cent. of all pregnant women. I should like to emphasize the danger of false statistics. The high percentage of mortality is on the first day, and it is not proper to publish statistics of infant mortality if we do not include the first day. Our children's bureau has prepared a fine set of charts showing the relation between infant mortality and income. It has always been my impression that it was really a relation between breast feeding and infant mortality. I hope that in publishing statistics the nativity of the mother will be brought out.

Dr. Frank Howard Richardson, Brooklyn: The chairman has brought to our attention the rather interesting fact that even the most refined women do not object to the physician's drawing the perfectly scientific parallel between human and bovine milk-production. It greatly surprised me at first to find that this was the case, but it certainly is true that they are quick to sense the analogy. It has been suggested that we must educate the profession in the advantages, as well as in the technic, of breast feeding. I have found the general practitioner an eager student of this simplest and best form of infant feeding, which gives him a workable and universally applicable system, in place of the cumbersome and frequently unsuccessful method that he was taught in medical school. The fact that many of the pediatricians and obstetricians have been less alert to adopt this natural method is to be seriously regretted. Two well known pediatricians said in the last year or two that there is absolutely no use in subjecting any woman to the "strain" of lactation; that artificial feeding has developed to such a high degree of perfection that breast feeding need no longer be employed. The method of expressing milk from the human breast is merely the adaptation to the smaller anatomy of the human breast of the dairy procedure of milking. The ball of the thumb and the ball of the index finger are placed on opposite sides of the breast, at a point just back of the pigmented areola. They are then brought nearly together, with the substance of the breast between them, and drawn forward at the same time, until a stream of milk is ejected by the pressure thus brought to bear on the reservoir just back of the openings of the ducts through the nipple. If one cannot squirt a stream 3 or 4 feet long from practically any breast, one has not learned the technic, and so, of course, cannot teach it to the mother, who is the one who must do this expression, as it is manifestly impossible for her to have a physician or a nurse go through this procedure every three or four hours. While the baby is the best milker, he is unfortunately anything but a conscientious "stripper," and will frequently refuse to finish his job while there is still plenty of milk in the breast. If he will not do this, the mother must do it for him by this manual expression just described.

THE RELATIONSHIP OF TUBERCULOSIS TO FISTULA IN ANO*

W. A. FANSLER, M.D.
Instructor in Surgery, University of Minnesota Medical School
MINNEAPOLIS

The relationship of tuberculosis to fistula in ano has long been the subject of considerable acrimonious discussion. At present there is a wide difference of opinion as to the extent of this relationship, reports varying from 1.4 per cent. to 70 per cent.

Andreal[1] states that in 1,592 cases of fistula in ano, 234 presented pulmonary tuberculosis either active or latent. He does not state how many of the fistulas were tuberculous in character. Gant[2] estimates that 10 per cent. of all rectal fistulas are tuberculous. Hartman states that from 10 to 14 per cent. of all patients with rectal fistula have active pulmonary tuberculosis, that 50 per cent. of all fistulas are tuberculous, and that 5 per cent. of all tuberculous patients have fistula. Dudley,[3] in a series of seventy-two cases seen at Bellevue hospital, found only one case tuberculous, or 1.4 per cent. Walsham[4] states that in 891 cases of pulmonary tuberculosis under treatment for three years there were only five cases of fistula and two of ischiorectal abscess. Thoss[5] reports that 5.5 per cent. of his fistulas were tuberculous from histologic examination, but that 11.9 per cent. were tuberculous from the point of view of the general physical findings. Gabriel,[6] on careful analysis of seventy-five cases, estimates that 20 per cent. are tuberculous. He relied on microscopic section and guinea-pig inoculation to confirm his diagnosis. In 701 cases, collected and reported by Pennington,[7] 14 per cent. were said to be tuberculous. Allingham estimated that 14 per cent. were tuberculous. Stone,[8] basing his opinion on his own series of thirty-seven cases and reports in the literature, mainly European, estimates that 10 per cent. of all cases are tuberculous. He also states that 42 per cent. of his patients had active pulmonary tuberculosis. This is certainly much higher than the usual number and could easily account for a 10 per cent. incidence of tuberculous fistula.

It will be seen from these reports that most of them are rather fragmentary and have not considered the question from all points of view. Likewise, the basis on which the diagnosis was reached has varied considerably. For instance, H. Kozucknoski states that a tuft of granulating tissue extending from the external orifice of the fistula definitely suggests tuberculosis. This is certainly untrue, at least in this country. A very large number of fistulas of long duration will show this condition, and histologic examination will reveal their simple inflammatory character. The more conservative group will not concede any fistula to be tuberculous unless a section is made that shows the definite microscopic picture of tuberculosis; namely, tubercle formation with giant cells, caseation, etc. This is too radical a stand, for there are some types of fistula from which the removal of a section is not justifiable. As a matter of fact, this is the very type in which I consider the diagnosis evident without a section. If we are to come to conclusions of practical value, it is necessary that every phase of possible relationship be considered, that we exercise reasonable conservatism in making our diagnosis, and that our cases be selected from widely distributed sources and not from some special group.

In such a general consideration, it would seem that the following questions should be answered:

1. What constitutes a tuberculous fistula and on what findings are we justified in making the diagnosis?
2. What percentage of fistulas are tuberculous?
3. In what percentage of cases is the tuberculous fistula the primary lesion, and in how many cases is it merely a secondary infection from a focus elsewhere in the body?
4. What percentage of fistulas occurring in tuberculous patients are tuberculous?
5. Does pulmonary tuberculosis have a tendency to cause fistula in ano?
6. Do simple fistulas occurring in nontuberculous persons indicate that the person has a tuberculous tendency?

Since there is such a variation of opinion concerning the occurrence of tuberculous fistula, it is necessary that we definitely state what is to be considered the tuberculous type. A number of writers feel that in tuberculous persons the original lesion of the bowel wall is produced by the tubercle bacillus, but that it is soon supplanted by the ordinary pyogenic organisms, which then form the abscess and fistula. It is well known that the tubercle bacillus frequently attacks the bowel lining, but whether or not the fistulas are caused in this way is really nothing more than a matter of conjecture. At the time of examination, only pyogenic organisms can be demonstrated in most cases. Likewise, as far as treatment is concerned, if at the time the case is seen it is one of simple pyogenic infection, we are not particularly concerned as to whether or not there was at some time past an original tuberculous lesion. On the other hand, if pathologic changes due to the tubercle bacillus are still going on, the method of treatment may vary considerably. Hence, in order to base our premises on definite and concrete facts and not on conjecture or deduction, it seems fair to define a tuberculous fistula as one which is caused by the tubercle bacillus and that the continuance or progress of the pathologic changes be due to that organism. This being true, on what grounds are we justified in concluding that the tubercle bacillus is the offending organism?

---

* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Andreal, quoted in *Henry Smith's Surgery of the Rectum*, 1881.

[2] Gant: Diseases of the Rectum, Anus and Colon, Philadelphia, W. B. Saunders Company **1**: 393.

[3] Dudley, G. S.: Ischiorectal Abscess: Its Etiology and a Method of Treatment to Avoid Fistula and Recurrence, Am. J. Surg. **35**: 365 (Dec.) 1921.

[4] Walsham, H. D., quoted by Goodsall and Miles: Diseases of Anus and Rectum, p. 131.

[5] Thoss: Rôle of Tuberculosis in Rectal Fistula, München. med. Wchnschr. **67**: 1440 (Dec. 10) 1920.

[6] Gabriel, W. B.: Results of Experimental and Histological Investigation into Seventy-Five Cases of Rectal Fistula, Proc. Roy. Soc. Med. (Sec. Surg.) **14**: 156 (June) 1921.

[7] Pennington, J. R.: Rectum, Anus and Pelvic Colon, Philadelphia, P. Blakiston's Son & Company, 1923.

[8] Stone, H. B.: Relation of Anus to Tubercle Infection, Am. Rev. Tuberc. **1**: 548 (Nov.) 1917.

As has been stated, there are two distinct groups as to what findings justify the diagnosis of tuberculous fistula: the more liberal group, which relies on the clinical picture with a liberal interpretation, and the more conservative group, which insists in all cases on a histologic examination with the typical picture of tuberculosis. I feel that the guinea-pig inoculation or the finding of tubercle bacilli from the secretion or scraping the fistula leaves some slight room for doubt, unless it can be definitely shown that there is no tuberculous focus higher up from which they might come. It would seem to me that we are justified in making the diagnosis on clinical findings alone only when the type of lesion has the typical eaten out appearance of tuberculous ulceration, or at least the indolent appearing type of fistula with large openings having thin skinned, undermined edges. In all other fistulas, the diagnosis of tuberculosis is not justified without microscopic sections showing the typical histologic picture of tuberculosis.

With the foregoing as a criterion, what percentage of rectal fistulas are tuberculous? On this point there is the greatest variation of opinion. I believe that this is due to the different sources of material and different findings on which the diagnosis was considered permissible. In America, the estimate varies from 1.4 per cent., in Dudley's series, to 14 per cent. in Allingham's. In Europe, the percentage is much higher. Basing my diagnosis on the tenets previously laid down, I have found five cases of tuberculous fistula in a series of 204 cases. All of these were in patients suffering from pulmonary tuberculosis. Four had previously had this diagnosis made, and one case was discovered at the time the patient presented himself with the fistula. Hence, in this series, the percentage of tuberculous fistula is 2.5. These cases were taken as they came; there was no especially large number from any tuberculosis sanatorium or clinic, and I believe that this figure is somewhere nearly correct if we consider all existing rectal fistulas.

Gant says that 95 per cent. of persons with tuberculous rectal fistula also have tuberculosis elsewhere in the body. In other words, that in 5 per cent. of tuberculous fistulas the primary seat of tuberculosis is in the fistula. As far as my small series of cases is concerned, I have not seen a tuberculous fistula in which there was not a focus of tuberculosis elsewhere in the body. There are a few cases reported in the literature in which the primary lesion of tuberculosis is in a rectal fistula. One thing is certain and generally agreed on, and that is, that it is extremely rare. From my own knowledge of tuberculosis and conversation with men specializing in that disease, I seriously doubt whether the primary lesion of tuberculosis is ever a rectal fistula.

Assuming that fistula in ano is frequently seen in tuberculous patients, then how many of the fistulas are themselves tuberculous? I find nothing in the literature on this subject. The percentage of patients with tuberculosis having fistulas is noted, but as to the percentage of tuberculous patients having tuberculous fistula there is no comment. My own experience is too limited to draw any definite conclusion. Of twelve patients with fistula seen at the Glen Lake Sanitarium for tuberculosis at Minneapolis, one is definitely tuberculous and another possibly is. In this group of 600 tuberculous patients, probably 16.6 per cent. of the fistulas are tuberculous and 0.33 per cent. of tuberculous patients have tuberculous fistula as a complication.

It is rather generally thought that pulmonary tuberculosis has a special tendency to cause the development of fistula in ano. This is probably true; still, I doubt whether the mere fact that the person has tuberculosis is as great a factor as is generally supposed. Walsham states that in 891 cases of tuberculosis observed over three years, only seven persons (0.81 per cent.) had ischiorectal abscess or fistula. Meyer reports 0.87 per cent. in 460 patients. At the Glen Lake Sanitarium there are twelve fistulas in 600 patients, or 2 per cent. This is a rather frequent history of fistula formation, but the question is, How much higher is it than it would be in any group of chronically ill persons living under similar conditions? By this, I mean that many of these patients are bedridden, often have constipation, and are obliged frequently to resort to cathartics and enemas. Fistula frequently results from these very things; and in persons whose physical resistance is below par, a rather frequent occurrence of fistula is not to be wondered at. It would seem to me, then, that the tubercle bacillus cannot be given credit for all these fistulas or even the formation of the primary lesion in the rectal mucosa. The fact must not be forgotten that the patient's health and resistance are at a low level and that he is often bedridden and is subjected to unusual rectal trauma.

It is a general opinion that a rectal fistula indicates a tendency toward pulmonary tuberculosis. The stumbling block has been that it is not always possible to say which appeared first, the fistula or the pulmonary tuberculosis. A small lesion is easily overlooked by the ordinary means of examination, and even the methods of precision do not always reveal it. There are certain data, however, which would seem to indicate that very probably fistula in ano does, at least in certain types of persons, indicate the presence of a tendency to the development of pulmonary tuberculosis. On this point the medico-actuarial reports of our insurance companies are most illuminating.

Through the courtesy of Dr. O. H. Rogers of the New York Life Insurance Company I was furnished with the following statistics. In a group of persons 25 per cent. or more overweight with a history of fistula in ano, the mortality rate was normal for their group. It was concluded that fistulas in overweight persons were of no great significance. It would seem, then, that, in general, fistulas occurring in persons over average weight are almost always due to the ordinary pyogenic organisms.

In a group of persons 15 per cent. or more underweight with fistula in ano, the mortality was 134 per cent. As the light-weight element was of little importance, it was concluded that fistula was a decided factor in this high mortality rate. Out of thirty deaths in this group, thirteen, or 40.3 per cent., were due to tuberculous disease. How many of the group developed tuberculosis, but recovered, is not noted. It is to be remembered also that this underweight group was a selected group—all had been operated on and their fistulas healed at least a year. They also had to pass the usual examination for life insurance. If every case of fistula in underweight persons were considered, the percentage of tuberculosis would undoubtedly be higher. The question may be raised as to whether or not these persons already had tuberculosis. This is hard to answer satisfactorily. Every one knows that a very high percentage of persons show healed lesions of tuberculosis. This group, at least, had no gross lesions as determined by ordinary physical examination. However, it does definitely show that a fistula in an underweight person should make us very suspicious of pulmonary or enteric tuberculosis. Every one should have a thorough physical examination before operation and periodically thereafter.

CONCLUSIONS

To sum up, then, what conclusions can be drawn concerning this condition, it is my belief that:

1. We are not justified in making the diagnosis of tuberculous fistula except by definite microscopic picture or in cases in which the lesion has the typical appearance described elsewhere in this paper.
2. Considering all cases of fistula in ano, it is doubtful whether more than 2 or 3 per cent. are tuberculous in character.
3. Tuberculosis is very rarely primary in fistula in ano. If it occurs at all it is not more than a small fraction of 1 per cent.
4. Probably 15 per cent. of fistulas occurring in tuberculous patients are tuberculous; 0.33 per cent. of tuberculous patients also have tuberculous fistulas. (These figures are based on a too insignificant number of cases to justify a positive statement.)
5. In view of the ease with which the tubercle bacillus affects the mucous membrane of the bowel, it would seem possible that in some cases—at least in tuberculous persons, in whom the fistulas appear to be a simple inflammatory process, that the original lesion in the bowel wall is due to the tubercle bacillus. However, this is purely a matter of opinion and has not been proved. In any event, it has but little bearing on the prognosis or treatment of the fistula.
6. It is probable that tuberculosis as such has a tendency toward the formation of rectal fistula, but that this tendency is not as great as is generally supposed. The general condition of the patient is also a decided factor.
7. It would seem that the formation of rectal fistulas in persons who are underweight is undoubtedly a definite warning of the presence of pulmonary tuberculosis or of a tendency toward its development. These persons are entitled to a most scrutinizing general examination, which, even if negative, should be repeated periodically.

531 La Salle Building.

ABSTRACT OF DISCUSSION

Dr. L. A. Buie, Rochester, Minn.: In the hands of general diagnosticians, the correct appreciation of rectal conditions is probably thirty years behind any other subject. Various theories are presented in textbooks or monographs on rectal diseases, and Dr. Fansler's presentation is no exception to the rule. I was taught in college that tuberculosis was the cause of practically all anal fistulas, and since I have been actively engaged in proctology I have learned that percentages have varied from 2 to as high as 90. Granted that we have a tuberculous fistula, I believe we have been observing too much conservatism in our treatment. Physicians feel that if patients have active pulmonary tuberculosis and incidentally a fistula, it is not right to operate on the fistula until most of the pulmonary disease has been overcome. After the abscess has been opened and sufficient fibrosis has taken place, which occurs in a variable period of time, the fistula should be attacked. With local anesthesia there is little or no strain on the lung, and the operation is not as devastating as is supposed. I think that one of the chief reasons why the operation for fistula is devastating is the lack of knowledge of anal anatomy. The internal opening of fistulas is rarely above the internal sphincter muscle. It is almost always in an anal crypt. It is true that the tract may go up alongside the bowel wall, but it does not mean that the internal opening is in the bowel wall. The man who first named fistula in ano was right; the fistula is anal and not rectal. An appreciable drop will be noted in febrile reaction, and possibly just sufficient load is removed to enable the patient to overcome the pulmonary lesion. I believe that tuberculosis is rarely associated with fistula in ano, and more rarely is there such a thing as a primary tuberculous fistula.

Dr. Collier F. Martin, Philadelphia: A fistula is the result of an abscess. The moment an abscess is opened it becomes a fistula, because the infection that causes these abscesses does not originate from any internal cause. Rarely is a tuberculous abscess primary; therefore we should not have a primary tuberculous fistula. Practically all the abscesses are due to infections with staphylococcus, contaminated with colon bacillus, and further from streptococcus. I have seen only a few tuberculous abscesses, so-called "cold abscesses." I can recall only three which I would say were primarily tuberculous. In 1903 we were using the Pirquet test and got a positive reaction in 383 cases and a negative one in four cases. The four patients with negative reaction died of pulmonary tuberculosis. About 5 per cent. showed positive signs of quiescence. The rest were nonclinical; nothing could be discovered. Thirty-nine patients died within four years, practically 10 per cent., of tuberculosis. Only about half of these thirty-nine patients had been operated on. In practically all this series we used spinal anesthesia to try to avoid irritant effect of ether on the lungs. After we reviewed the figures we came to the conclusion that we could not calculate the percentage of cases that were tuberculous. There were only a few cases of what we would call clinically cold tuberculous fistulas, but we had many cases of fistulas in tuberculous subjects who were losing weight and who became more or less depressed, showing that some of this was due to lack of resistance and lack of power to build new tissue, not necessarily to any local infection. We should not overlook tuberculosis in that or any other condition. We should always be on the lookout for it. By lowering body resistance to infection by ordinary pyogenic bacteria, these abscesses develop. Secondarily the ulcerating fistulas become infected with tubercle bacilli and give the clinical picture. Fistula is a chronic abscess, a chronic infection, and may interfere with the patient's health. Many patients with tuberculosis are greatly benefited by operation. The exception would probably be those patients who are so terribly weighed down with their toxic condition that they have not any power to come back when they have been rid of part of their load. The majority of these patients are greatly improved by getting rid of at least one point of infection.

Dr. Ralph W. Jackson, Fall River, Mass.: My experience has convinced me that fistula diagnosis and therapeusis is almost "a specialty within a specialty." The varieties of anorectal fistula are legion, and some of the most difficult are the so-called tuberculous ones. Early in my special work I had the opinion, held by the general profession, that the vast majority of fistulas were either tuberculous or significant of tuberculosis elsewhere. As the years have gone, bringing me a considerable amount of fistula work, I have become convinced that the tuberculous cases are far less frequent; and, while I have no exact data, I think that not more than 10 or 15 per cent. of my patients could be suspected of being tuberculous. In my experience such patients less often give a history of initial abscess, have a thin and milky rather than a frankly purulent discharge, and a general sluggish appearance and action; and from these symptoms one can approximate a correct diagnosis of the tuberculous character. As the years have gone, too, I have become convinced that tuberculous fistulas should be treated pretty much as any other type, and have had less fear of operating on them, except to avoid the possibility of irritating and aggravating a pulmonary complication. This means, of course, avoidance of general anesthesia, and working under local, or preferably spinal or sacral. After operation the diagnosis of tuberculosis often comes out even more clearly, for the incisions granulate and heal very slowly; but with good postoperative care the results are often as good as when there is no tuberculosis.

Dr. W. A. Fansler, Minneapolis: I hope the paper brought out two things: first, that the percentage of fistulas actively tuberculous is small; second, that presence of fistulas, at least in underweight persons, should be a definite warning of the possibility of pulmonary tuberculosis and that these patients should periodically have careful physical examinations.

THE NONSURGICAL MANAGEMENT OF PEPTIC ULCER BY THE "PHYSIOLOGIC REST" METHOD

RESULTS IN FOUR HUNDRED AND SEVENTY PATIENTS

FRANK SMITHIES, M.D.
Professor of Medicine, University of Illinois School of Medicine
CHICAGO

In May, 1916, I[1] proposed a regimen of nonsurgical management for selected instances of peptic ulcer (gastric and duodenal). It attempted to aline nonsurgical management with the facts which investigations in the clinical course, pathology, bacteriology and physiology of peptic ulcer had made available. To summarize, I emphasized that:

(*a*) In more than 95 per cent. of instances, peptic ulcer is a visceral lesion formed as a complication of a systemic, constitutional, toxic or environmental disturbance.

(*b*) A fundamental step in therapy demands recognition of the possible causative factors and an attempt at their eradication or alleviation, irrespective of any form of treatment to the visceral lesion; this necessitates intensive analysis of each ulcer subject.

(*c*) The clinical symptomatology of peptic ulcer depends largely on the manifestations of abnormal gastric and duodenal motor activity rather than on unphysiologically altered digestive chemism.

(*d*) Healing of peptic ulcer is facilitated best by assuring rest to the affected part, but owing to the properties peculiar to such ulcer bearing tissue, this rest must be "physiologic rest," i. e., secretory and motor activities both must be held in abeyance.

(*e*) By arrangement of general care, diet and, in certain circumstances, of medicinal agents, to meet the local pathologic and physiologic disarrangement, it is possible to assure physiologic rest to the ulcer site.

(*f*) It has not been proved that alkalization of gastric contents (so-called "continuous" or "intermittent") is necessary or is conducive to peptic ulcer healing, particularly when such alkalization is exhibited as a requisite "anticorrosive" remedy.[2] No reliable pathologic proof has ever been advanced showing that massive doses of alkali influence favorably the healing of peptic ulcer. Much proof exists that large doses of alkali actually interfere with ulcer healing by exciting "defensive" oversecretion of gastric juice, with resultant unphysiologic exhaustion of the secretory mechanism and by alkaline irritation of gastric and duodenal mucosae.

(*g*) Dietaries common to routine "ulcer cures" usually conform to no physiologic *principle; particularly* incompatible are such dietetic regimens in vogue when treatment by "continuous alkalization" is carried out.

(*h*) Frequent gastric lavage is unnecessary and often is harmful.

(*i*) Finally, there is evidence that, *not rarely*, peptic ulcer is, viscerally, a self-limited ailment, of peculiar "periodicity," whose "natural" *remissions are, all too* frequently, considered as dependent on special modes of management, even *though such regimens* differ widely in their theory of action and in their practice.

That many of these objections to the commonly practiced "ulcer regimens" voiced in my early communication were not unfounded is demonstrated by the changing trend of ulcer literature during the last decade. Vigorous protests *against the efficacy* of "rule-of-thumb" overalkalization therapy have appeared, notably, from Brown,[3] Lemon,[4] McVicar[5] and Friedenwald.[6]

I have seen no reason to *alter the views expressed* in 1916. The method advanced has proved practical and efficacious. The chief purpose of the present report is to submit the results that I have obtained. Limited space forbids *details of the regimen that I suggested.* The original and subsequent papers should be consulted.[7] The general care and the dietetic management are as follows:

Days 1 to 7 (time varies according to ulcer location, type and visceral irritation).—The patient begins treatment as a bed patient.

Feeding: By mouth, one-half ounce (15 c.c.) of warm water hourly when awake. Patient chews paraffin wax for fifteen minutes at least once in two hours. Juice of sweet orange or grapefruit occasionally.

By rectum, nutrient enema consisting of 50 per cent. alcohol, 1 ounce; glucose syrup, 1 ounce, and physiologic sodium chlorid solution, 6 ounces every four hours. The enemas are preceded by a cleansing irrigation of the colon with physiologic sodium chlorid solution. They are given at body temperature by the *drop method* at the rate of from 30 to 60 drops a minute. During the first two days, tincture of opium, 10 *minims (0.6 c.c.), may be added if pain and spasm* are severe.

Days 3 to 14 (case of average severity).—By mouth, from 4 to 6 ounces (120 to 180 c.c.) *of water gruel* at a temperature of 100 F. The gruel is taken slowly through a glass tube. Gruels are made *from* rice, cream *of wheat, oatmeal,* sago, corn-meal, cauliflower, beans, peas and boiled onion. They are strained before feeding. Flavoring with coffee, chocolate, vanilla, caramel, etc., renders the cereal gruels palatable and their administration easier. To the vegetable gruels, small *quantities of arrowroot* or corn-starch are added to secure a thin *emulsion.*

Before each feeding, paraffin wax is chewed for five minutes. Warm water or sweet orange or grapefruit juice are allowed as desired, but never *taken in* greater quantity than 1 ounce (30 c.c.) at a time.

By rectum, during the first two days of mouth feeding, two alcohol-glucose-saline nutrient enemas are given. During the second two days, one such nutrient enema is administered.

---

[1] Smithies, Frank: Am. J. M. Sc. **153:** 547 (April) 1917.

[2] Mueller, L., Das corrosive Gaschwur in Magen und Darmkanal, Erlangen, 1860.

[3] *Brown,* Thomas: The Relative Röles of Medical and Surgical Treatment in Gastric and Duodenal Ulcer, Tr. Sect. *Gastro-Enterol.* & Proctol. A. M. A., 1922, p. 141.

[4] Lemon, W. S.: Northwest Med. **18:** *179* (Sept.) *1919.*

[5] McVicar, C. S.: Tr. Am. *Gastro-Enterol.* A., May 5, 1924, p. 204.

[6] Friedenwald, J.; Gantt, W. H., and Morrison, P. H.; Ann. Clin. Med. **2:** 292 (March) 1924.

[7] *Smithies, Frank (Footnote* 1); Significance of *Etiologic Factors in* the Treatment of Peptic Ulcer, J. A. M. A. **74:** *1555 (June 5) 1920;* Am. J. M. Sc. **156:** 781 (Dec.) *1923;* Ann. *Clin.* Med. **2:** 262 (Jan.) 1924.

After the fourth day of mouth feeding, no rectal feedings are given in the average case.

Days 14 to 21.—6:30 a. m.: A glass of hot water and 1 teaspoonful of noneffervescent sodium phosphate.

7:30 a. m.: One ounce of sweet orange or grapefruit juice, 2 ounces (60 c.c.) of thin cream of wheat, or farina, or well cooked rice, or corn-meal; 2 ounces of skimmed, parboiled milk may be taken with cereal, and if desired a small quantity of powdered sugar used; one zwieback with a thin layer of fresh butter, 4 ounces of parboiled, skimmed milk, containing half volume of lime-water, served warm and flavored with coffee, cocoa, caramel or vanilla.

9:30 a. m.: Six ounces (180 c.c.) of thin water gruel from cereals or fresh vegetables, strained and served hot; one rusk or zwieback, or dry toast.

11:30 a. m.: Four ounces of malted milk, whipped egg, with parboiled milk, corn-starch pudding, simple custard lightly cooked.

12:30 p. m.: Six ounces of potato, pea, bean, or asparagus purée (strained), or vegetable broth; 4 ounces of salisbury steak (moderately well cooked) to chew; 2 ounces (60 gm., cooked weight) of thin rice, sago, tapioca, or corn-starch pudding made with parboiled milk and egg yolk; 2 ounces of parboiled milk and a small quantity of pulverized sugar may be eaten with the pudding; one rusk or zwieback, 6 ounces of parboiled milk and quarter volume of lime-water flavored to taste.

4 p. m.: Four ounces of water gruel from cereals, one very soft, poached egg, one rusk or zwieback, 4 ounces of hot Vichy water.

6 p. m.: Four ounces of whipped egg, two rusks or zwieback, 6 ounces of malted milk (thin), flavored to taste, or cereal water gruel or parboiled milk and quarter volume of lime-water gruel.

9 p. m.: Six ounces of water cereal gruel or 4 ounces of malt marrow, two graham crackers.

Days 21 to 42.—6:30 a. m.: Two teaspoonfuls of sodium phosphate in a glass of hot water.

8 a. m.: Juice of one sweet orange or half sweet grapefruit, or boiled prunes passed through fine collander; 2 ounces (cooked weight) of thin cereals (cream of wheat, farina, oatmeal, corn-meal); 2 ounces of skimmed milk and small amount of powdered sugar; one soft poached egg; either two zwieback, two rusks or two thin slices of well toasted graham bread; 1 pint of hot skimmed milk plus a quarter volume of lime-water flavored to taste (cocoa, vanilla, etc.).

10 a. m.: One pint of hot parboiled whole milk and fifth volume of lime-water; two rusks or graham crackers.

12:30 p. m.: Four ounces of creamed soup from vegetables, strained; 6 ounces of rare meat to chew; 4 ounces of well mashed potato or baked potato (mealy inside), or carrot, peas, beans, cauliflower, Brussels sprouts or asparagus (all vegetables passed through a strainer and served with 15 gm. of butter); 4 ounces (cooked weight) of pudding from rice, corn-starch, sago, tapioca, cream of wheat or farina, or 4 ounces of custard, pulp of sweet orange, grape fruit or prune whip, or chew 6 ounces of watermelon or cantaloup; half pint of hot skimmed milk.

3:30 p. m.: One hundred and fifty cubic centimeters of hot whole milk and quarter volume of lime-water or 150 c.c. of malted milk or weak cocoa.

6:30 p. m.: Two rusks or zwieback or two slices of well toasted graham bread; two very soft poached eggs; 100 gm. of sweet apple sauce or one baked apple (omit skins), or juice of sweet orange or half of grapefruit, or chew 6 ounces of melon; 1 pint of skimmed milk, hot.

9 p. m.: Two hundred and fifty cubic centimeters of whole parboiled milk and quarter volume of lime-water or 250 c.c. of malted milk, hot.

General Diet for Three Months.—If distress, patient should go back to seven to twenty-one day diet.

7 a. m.: One pint of skimmed milk and half a gill of cream.

9 a. m.: Two pieces of toast without butter; juice of one sweet orange or grapefruit or ripe melon or apple sauce or baked apple (do not eat skin) or marmalade; one dish of well cooked cereal (oatmeal, farina or cream of wheat); two very soft poached eggs; 2 cups of hot, sweetened water. The water may be made more palatable by flavoring with cocoa, tea, coffee or cream.

11 a. m.: One cup of bouillon (two cubes); two graham crackers.

1 p. m.: This should be the heavy meal of the day. It may consist of meat (rare beef, rare hamburger steak, lamb or white meat of fowl), fish (never fried), oysters, well cooked spinach, cauliflower, carrots, squash, peas (hulled), string beans, Brussels sprouts, baked or mashed potatoes (in moderation), rice with gravy, simple puddings made from cereals, corn-starch, gelatin, well cooked fruit sauces, simple cakes, no white bread (all bread should be made from dark flour and should be at least one day old); 1 pint of skimmed milk taken hot.

4 p. m.: One glass of hot peppermint water (20 drops of "essence" of peppermint to the glass), sweeten to taste and drink slowly; two graham crackers.

7 p. m.: A light lunch consisting of vegetable soup, simple salad, toast, soft eggs, and plain puddings or cake, with or without ripe cooked fruit sauces; 1 pint of hot skimmed milk.

Bedtime, one glass of malt marrow, malted milk or hot skimmed milk.

Medicinal Management.—This consists chiefly in the exhibition of antispasmodics (atropin, tincture of belladonna, bromids) to control hyperperistalsis, orificial spasms, pain or nervous unrest. The average patient receives neither alkalis nor lavage. (For special indications one should consult my previous communications.[8])

REPORT OF RESULTS OF TREATMENT

The material analyzed in this study comprises 470 patients affected with ulcers as follows: 128 wholly gastric; thirty-six pyloroduodenal, and 306 duodenal. These patients form a group observed during the interval 1914-1924, but the group does not include patients studied between 1922 and 1924 since, on account of the nature of the ulcer problem, it is considered that patients under management for two years or less supply data that are not proof against critical analysis. Furthermore, this study does not deal with 302 patients who were regarded as subjects for surgical care and referred from our practice with that object. Thus, it will be evident that this report is concerned with a material judiciously selected. Elsewhere I have listed the factors that determine the clinical segregation of our peptic ulcer patients.[7]

General Results Following Peptic Ulcer Management by the Author's Regimen.—When a clinician follows any type of therapeutic management for any particular form of ailment in a considerable group of patients, over a number of years, he is in better position to secure the desired results than are those to whom the procedure is new or who manage only an occasional patient. Therefore, it follows that the results reported represent a degree of success possibly greater than others who apply my regimen will secure in their early endeavors. Until this method of peptic ulcer management has been tested by a considerable number of capable and observant physicians, on patients exhibiting every phase of ulcer symptomatology and pathology, and their results compared with results obtained by other procedures, we shall be unable to determine in just what particulars my mode of treatment is superior, clinically, to other methods in vogue. The accumulation of satisfactory data will require time, patience and intelligently directed effort.

However, apart from the recording of number of ulcer cures, the type of treatment which I suggest can claim to itself certain advantages, simply as a method:

(*a*) It brings peptic ulcer management into line with modern investigations in alimentary tract physiology and pathology.

(*b*) It seeks to recognize and eliminate or to alleviate the causative agents or conditions leading to the production and the continuance of ulcer.

(*c*) It permits handling of patients along reasonable lines and not according to set formulas, irrespective of the particular problem at hand.

---

[8] Smithies, Frank (Footnote 1; Footnote 7, second reference).

(*d*) It is practical and safe, is easily instituted, and is carried out with minimum effort, in the home as well as in the hospital, without specially trained help and with little expense.

(*e*) It practically abolishes the necessity for frequent and prolonged use of the stomach tube—an advantage quickly appreciated by patients, nurses and physicians.

(*f*) If employed in institutions, the method saves much time for interns and nurses, since they are relieved of much routine, so characteristic of many ulcer regimens in vogue.

(*g*) It calls for the exhibition of but little medicine; particularly does it do away with the long continued use of disagreeable and expensive alkaline remedies.

(*h*) It removes from a class of patients the dangers possible from "continued alkalization," alkalosis—a real danger, as the work of McVicar[5] at the Mayo Clinic has shown.

(*i*) It permits, at all times, an accurate appraisal of the patient's true condition; one is not misled by false symptoms and signs due to the digestive anomalies caused by unphysiologic feedings, excess of medicine and effects of tubing and lavage. The patient is always in a condition in which motor test meals, fluoroscopic observations and stool blood tests can accurately be carried out.

(*j*) When the patient is affected with ulcer involving the cardia or the proximal fourth of the stomach, he is not exposed to tube trauma or to ulcer irritation by tubings which may (as in a number of cases under our care after other treatment had previously been given) rapidly carry forward ulcers to malignancy, severe hemorrhage or even perforation.

(*k*) It is particularly adaptable to the handling of those patients on whom gastric operations have been performed and in whose stomachs ulcers recur or gastro-jejunal ulcers develop. In this type of patient, gastric lavage rarely empties the dilated jejunal loops of poorly digested, stagnant food; in such circumstances, alkalis are of great annoyance, since, when administered, they pass rapidly from the stomach.

(*l*) Finally, by instituting the regimen only in selected groups of proved ulcers, and by not attempting its employment in unsuited instances in a wholly haphazard way (as has been the custom heretofore with nonsurgical regimens), prognosis is brighter: the patient enters on a course of therapy not with the attitude that the nonsurgical method is a sort of experiment to be tried (at great cost of time and money) as a preliminary to surgical treatment, but in a cooperative, optimistic spirit, highly conducive to the best results.

SPECIAL RESULTS OF THE "PHYSIOLOGIC REST" REGIMEN

1. *Time in Hospital.*—In our hospital cases, the average duration of incarceration was twenty-six days, a saving of nearly half the time and money required by the regimen advocated by Ewald, Schlutz, Sippy and others. Actual bed confinement averaged less than nine days.

2. *Control of Pain.*—In 40 per cent. of patients, all pain had disappeared within twenty-four hours of beginning treatment; an added 33 per cent. experienced pain relief within forty-eight hours; 8 per cent. required seventy-two hours; 15 per cent. almost ninety-six hours; in approximately 4 per cent., it was necessary to relieve pain by opiates. The last group consisted of ulcers whose extension had advanced to the serous layer of the stomach, or the ulcers were of the deep, fissured type, directly located at the pyloric or cardiac orifice. A total of 81 per cent. were subjectively comfortable in three days or less.

3. *Control of Excessive Gastric Secretion.*—Only when ulcers productive of great gastric irritability are located at or near the pylorus (on either side of the sphincter) need hypersecretion give concern. Much of the so-called hypersecretion associated with night distress is caused by overalkalization. It represents, chiefly, the attempt of the stomach to produce acid sufficient to neutralize the enormous doses of alkali given, and thereby to establish the normal, physiologic reaction of slight acidity or actual acidity common to gastric and duodenal mucosa. "Excessive secretion," *night hypersecretion and their concomitants* usually stop promptly when huge doses of alkali are stopped, diet as described by me initiated and "physiologic rest" established. Only 17 per cent. of our patients exhibited "hypersecretion" when treatment was begun, and in none of these patients was there the slightest evidence of it after the fourth day. Many of the clinical manifestations that are attributed to "hypersecretion" are subjective discomfort due to gastric hypermotility, gastric or duodenal spasms, or anatomic obstructions causing definite gastric stagnation. The subjective distress disappears when physiologic rest brings about visceral relaxation. In the true stenosis cases, medical management has no place other than palliative.

4. *Cessation of "Occult" Hemorrhage.*—Gross hemorrhage is accountable for a 4 per cent. immediate mortality. "Seepage," indicative of active histologic changes at the ulcer site, ceases within twenty-four hours after there has been brought about absolute visceral rest by my regimen. Of 41 per cent. of our ulcers exhibiting positive occult blood tests when treatment was begun, at the end of five days 92 per cent. of the patients' stools were blood-free. Slow disappearance of "occult" blood results from frequent gastric lavage, unsuited food, long maintained gastric spasms or from a type of ulcer undergoing malignant change, or of great size, progressive or extensively infected by actively proliferating colonies of cocci.

5. *Prevention of Perforation.*—Seven of our cases went on to actual perforation (1.5 per cent.). They were poor surgical risks at entrance, and were ulcers which, if seen earlier, would have been given the benefit of surgical measures. The frequently or the constantly bleeding ulcer makes up 62 per cent. of those patients showing actual or protected perforation at laparotomy or necropsy. Thus, gross hemorrhage almost automatically relegates an ulcer into the group that is immediately or potentially surgical. Of our 470 cases of peptic ulcer, we had no case go on to perforation while under treatment, except the seven mentioned above.

6. *Proof of Healing.*—In sixty-six patients who came to laparotomy for numerous intra-abdominal lesions, following institution of our ulcer management, completely healed scars were demonstrated in fifty-four, approximately 82 per cent. In the remaining twelve patients, malignancy, perforation, multiple ulceration or actual, benign ulcer activity were present. This highly gratifying result definitely proves that peptic ulcers can heal if given opportunity equal to that which the surgeon gives stomachs on which he has performed resection, excision or entero-anastomosis. Roentgen-ray proof of healing was shown in ninety-

four cases by disappearance of local ulcer tender areas on palpation during fluoroscopy, and by absence of inferential, motor phenomena characteristic for active ulceration.

Lengthening of Time Interval Between Attacks.—Such observation furnishes, from the patient's point of view, significant proof that satisfactory results are being secured. Previous to treatment, 162 ulcers gave an average time interval between attacks of five months. This group, after treatment, had a lengthened symptom-free period of an average of rather more than thirty months in those cases in which symptoms recurred. Dyspepsia-free intervals averaging eleven months were recorded in 234 cases before treatment; it lengthened to thirty-seven months as an average after treatment. Thirty-two patients before treatment had had quiescent periods averaging nineteen months; after treatment, those on whom we have reports had increased to an average of forty-four months. On forty-four patients we have no accurate data relative to the incidence of dyspepsia-free intervals. In this group, twenty-three cases have gone for longer than three years without recurrence.

Recurrences.—For the whole series, this was noted in 14 per cent. (sixty-six cases). The recurrences were of an ailment like the primary one, and clinical and roentgen-ray proof was available showing that the visceral upset was at the site of the initial lesion. Twenty-eight cases "recurred" from one to five times; this probably indicates that these patients, ultimately, will come to operation.

Permanent Cures.—Of the whole group, 470 patients in their present status, there is justification for claiming cessation of the ulcer process in 361, or 77 per cent.

1002 North Dearborn Street.

Clinical Notes, Suggestions, and New Instruments

PERNICIOUS ANEMIA WITH DIABETES; LEUKEMIA IN DAUGHTER

Carl Schumann, M.D., Utica, N. Y.

Three cases of pernicious anemia with diabetes mellitus have been reported by S. F. Adams.[1] These constituted the only ones in a five year period at the Mayo Clinic, including approximately 1,000 cases of pernicious anemia and 2,000 cases of diabetes mellitus. Another case is reported herewith. The patient died from pernicious anemia in March, 1925, eighteen months after she first came under observation. As in Dr. Adams' cases, insulin was used, but instead of proving useless, adequate response was obtained, probably because it was a milder type or was discovered early enough.

REPORT OF CASE

History.—A woman, aged 55, the mother of four healthy grown-up children, had always been in robust health up to her fiftieth year. In September, 1923, when she first came under observation, she had a fairly severe attack of influenza. The same year the menopause occurred, without noteworthy disturbance. In February, 1922, she underwent operation for perineal repair and uterine displacement, with removal of the appendix. If the anemia or the diabetes had been present then they would probably have been discovered. Thrombophlebitis involving the left lower extremity occurred after the operation, eventually subsiding completely. The family history was completely negative for blood dyscrasias and diabetes. A brother died three years previously from carcinoma of the esophagus.

Physical Examination.—An intense anemia of the skin and mucous membranes was striking, with a slight yellowish tinge of the skin and sclerae. Nutrition was good; there was no evidence of emaciation. The thoracic and pelvic viscera were not abnormal. The abdomen presented a postoperative scar in the midline below the umbilicus. The liver and spleen were neither enlarged nor tender. No tumor nor tender areas were present. All reflexes were present within normal limits. All the teeth had been extracted. No lesions of the tongue or mouth existed. A moderate elevation of temperature and pulse was present for a few days. There was pain and moderate tenderness in the lower thoracic and lumbar spine.

Debility was pronounced, with thirst, polyuria, anorexia, some nausea, occasional regurgitation or vomiting of the stomach contents with or without food, and moderate diarrhea. Nourishment could be taken only in small amounts. Tongue symptoms were late in the course, and were never very pronounced nor troublesome. The central nervous system symptoms were pronounced and persistent: headache, not relieved by ordinary remedies; insomnia; backache, lower thoracic and lumbar; girdle sensation; tingling and numbness of the hands and feet, and pain in the toes at times.

Roentgenologic gastro-intestinal examination revealed a contracted stomach emptying within four hours, but nothing further of note.

The urine was clear and acid. The specific gravity was 1.024. Examination disclosed no albumin; a large amount of sugar; no acetone or diacetic acid; diastase, 50 units; no casts.

Examination of the blood revealed: Wassermann reaction, negative; sugar, 0.222 mg.; hemoglobin, 35 per cent. (Tallqvist); erythrocytes, 1,200,000; leukocytes, 6,400. The erythrocytes showed many microcytes and macrocytes, some polychromatophilia, considerable poikylocytosis and anisocytosis, a few punctate cells, and one nucleated red cell. Differential count of the leukocytes revealed: small lymphocytes, 43 per cent.; transitionals, 2 per cent.; polymorphonuclear neutrophils, 52 per cent.; eosinophils, 3 per cent. The color index was 1.4.

The stools were negative for occult blood, ova and other abnormalities.

Insulin was administered once daily. In ten weeks, glycosuria and its symptoms had disappeared. They did not recur. The only dietary restrictions, because of the small quantity of nourishment taken, were exclusion of all foods containing sugar. Later these were again permitted to be taken, without recurrence of glycosuria. The anemia ran the usual course. Temporary improvement followed the first two transfusions of 500 c.c. of blood. Later, even larger transfusions gave little benefit. Repeated erythrocyte counts ranged from 1,200,000 to 2,600,000; the character of the red cells never showed decided changes. Nucleated cells were not always found.

LEUKEMIA IN DAUGHTER

The literature on familial blood dyscrasias, even the most recent, is quite silent on the occurrence of pernicious anemia and leukemia in members of the same family. I have reason to believe that it has been observed but that reports have not been published. The possibility of a common etiologic factor was thought of in connection with this case; no evidence of this was to be found. The leukemia was of the splenomedullary type in the 27 year old daughter of the patient. The onset was apparently acute. No evidence of the disease was present during the preceding two years, when she had been examined for other ailments. A pyuria had been found in these preceding observations, which appeared to be caused by a pyelonephritis, judging from the urinary findings. Consent for cystoscopic examination had not been obtainable. The only symptoms produced by the leukemia were indefinite epigastric distress and debility. The spleen extended down to the true pelvis and to the midline. Blood examinations revealed: hemoglobin, 40 per cent. (Tallqvist); leukocytes, 420,000, myelocytes predominating; erythrocytes, 2,600,000. Roentgen-ray therapy resulted brilliantly, with apparently complete restoration of the spleen to normal size, leukocytes normal in numbers and types, with gain in weight and strength.

---

[1] Adams, S. F.: M. Clin. N. Am. 8: 1163 (Jan.) 1925.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - - Chicago, Ill.

Cable Address : : - - "Medic, Chicago"

Subscription price - - - - - - Five dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, AUGUST 29, 1925

THE NEW PHARMACOPEIA

The United States Pharmacopeial Convention met in Washington in May, 1920, and appointed a committee to revise the Pharmacopeia of the United States. The committee has now completed its work and the new Pharmacopeia was placed on sale, August 15. Since the new book does not become official until Jan. 1, 1926, an interval of four and one-half months is allowed for physicians to become familiar with the changes and for pharmacists to dispose of their stocks made according to the present book, the U. S. Pharmacopeia IX. The responsibility for the scope of the U. S. P. X was placed on the twenty-one physicians on the committee; i. e., on those having the degree of doctor of medicine. Consequently, the new book should more nearly represent rational medicine than some of the preceding revisions in which pharmacists and pharmaceutic manufacturers largely controlled the situation. From the standpoint of the clinician, the most noteworthy feature of this revision is the small number of admissions as compared with the large number of deletions. Only forty new drugs and preparations are added, while 192 have been deleted. This change, important though it is numerically, is of even greater significance than the numbers alone connote, for the new drugs, with a few exceptions, are substances that give promise of being useful additions to our materia medica, while the deleted drugs are either little used or comparatively worthless, or are therapeutically better represented by others in the book. Of the added drugs and preparations, thirty-one are already described in New and Nonofficial Remedies. Many of the tests and assays for these were previously worked out in the American Medical Association Chemical Laboratory and now appear in the official publication of the Council on Pharmacy and Chemistry. The most important additions are acetylsalicylic acid, benzocain, ethyl chaulmoograte, amidopyrin, the silver proteinates, arsphenamin, neo-arsphenamin, barbital and its sodium compound, barium sulphate, carbon tetrachlorid, dichloramin, epinephrin, phenobarbital, procain hydrochlorid, quinidin sulphate, quinin ethylcarbonate, sodium biphosphate and surgical solution of chlorinated soda. Of the nine additions not in New and Nonofficial Remedies, two titles, ipomea (Mexican scammony) and its resin, represent a substitution of the Mexican drug and its resin for the Turkish drug and its resin, which were described in the U. S. P. IX and which are not now readily obtainable. Among the additions, that of Rhus glabra and its fluidextract will add little to the prestige of the book. The addition of whisky and brandy may be criticized by many, but extensive prescribing perhaps warrants the inclusion. The elimination of eleven extracts and of twenty-seven fluidextracts is in keeping with modern prescription practice. The omission of such substances as arnica, calcium hypophosphite, cerium oxalate, coriander, grindelia, hops, lactucarium, three lithium salts (bromid, carbonate and citrate), matricaria, prickly ash, musk, parsley, pepper, saw palmetto, stillingia, sumbul and taraxacum is a distinct aid to scientific medicine. The alkaloids morphin and strychnin have been deleted, but these are better represented by their soluble salts. The retention of sarsaparilla will be regretted by progressive clinicians.

Physicians and pharmacists will welcome the effort that has been made to simplify the names. For comparison, a few examples of Latin titles are given in parallel columns:

U. S. P. IX	U. S. P. X
Acidum Phenylcinchoninicum	Cinchophenum
Balsamum Tolutanum	Tolu
Hexamethylenamina	Methenamina
Hypophysis Sicca	Pituitarium
Liquor Hypophysis	Liquor Pituitarii
Saccharum	Sucrosum
Saccharum Lactis	Lactosum
Serum Antidiphthericum Purificatum	Antitoxinum Diphthericum
Thyroideum Siccum	Thyroideum

As was noted in a previous editorial in The Journal,[1] the biologic assays have been greatly amplified so that instead of two drugs and their preparations for which bio-assays were required in the U. S. P. IX, there are now eight which must be standardized by these methods. These are aconite and its tincture, cannabis and its fluidextract, digitalis and its tincture, solution of epinephrin hydrochlorid, ergot and its fluidextract, solution of pituitary, squill, its fluidextract and tincture, and strophanthus and its tincture. Because of the difficulty in preparing standard samples of these drugs which will be of uniform strength, the Bureau of Chemistry of the United States Department of Agriculture is prepared to furnish samples of standardized preparations to manufacturers for adjusting the activity of new lots. It is believed that the obligatory bio-assays will result in greater uniformity and dependability of the market supplies of these hitherto unsatisfactory drugs.

The changes in the strengths of three mercurials should be especially noted by prescribers. Formerly

---

1. The Forthcoming United States Pharmacopeia, J. A. M. A. 83:923 (Sept. 20) 1924.

the 50 per cent. ointment of mercury, employed as a means of systemic administration of this drug by inunction, was known as Unguentum Hydrargyri, and a 33 per cent. ointment, intended to be used as a local remedy in parasitic conditions of the skin, was known as Unguentum Hydrargyri Dilutum. The name of the latter has been changed to Unguentum Hydrargyri, while the form intended for absorption is called Unguentum Hydrargyri Fortius. The new ointment of mercury, therefore, is made with a base not intended for easy absorption through the skin, but for its immediate local action, and when the physician desires the constitutional action of mercury, he should prescribe Ung. Hydrarg. Fort. The ointment of yellow mercuric oxid (Unguentum Hydrargyri Oxidi Flavi) has been reduced from 10 per cent. to 1 per cent., in conformity with the customary practice of today.

The unit of measure is the cubic centimeter (abbreviation cc.), which replaced the milliliter (mil) of the U. S. P. IX. The change from cc. to mil in the previous revision never became popular in this country. Prescribers and dispensers will doubtless be glad to see the old familiar cc. again. The official abbreviation for gram remains "Gm.," but cubic centimeter is abbreviated to "cc."

While the new book has erred in the retention of some drugs of doubtful worth, it represents the trend of therapeutic thought much more completely than any of its predecessors or any of the foreign pharmacopeias now official.

THE DIABETIC CHILD

Every physician to whom the care of diabetic children has been entrusted must have felt deeply something of the despair that the futility of his therapy was likely to bring about a few years ago. It is true that medical attention tended to prolong the lives of the youthful patients and thus promote the hope of relief that the spark of life tends to maintain. Unfavorable prognosis in the case of a person who has already filled a goodly number of years is, of course, distressing; but it lacks much of the pathos inherent in the hopeless outlook for a life that should ordinarily still be endowed with the potentialities of growth and development—with the engaging possibilities of real accomplishment. Prior to 1921, the prospect of gain in size on the part of the diabetic child was small indeed; fortunate was the adolescent who could cling to a frail life for a few discouraging months, except in the cases of those whose disease was of the mildest nature. The introduction of the therapy of undernutrition doubled the children's lives at the expense of their weights.

The advent of insulin has brought a change of outlook; it augurs better. The experience of Joslin[1] and his co-workers in Boston is doubtless indicative of what is happening in many parts of the world. The gain in weight of the diabetic child treated with insulin resembles that of the normal youth. The child may be underweight for its age, though not necessarily for its height. Furthermore—and this is of the highest physiologic import—there appears to be something more than mere increase in size: development apparently proceeds in the direction of real maturity. It is perhaps too early in the history of insulin therapy to determine to what extent sexual unfolding approaches the normal. As Joslin remarks, the endocrinologist will have an unusual opportunity to make his contribution to this feature, along with the pediatrician and the dietitian, on whom the responsibility for the diabetic child has heretofore solely rested.

The worth-while future of the undeveloped diabetic patient depends fundamentally on a real regeneration of the lacking pancreatic tissue; otherwise, continuance of life means merely a precarious existence in the "diabetic danger zone." The evidence is still too meager to warrant prophecy, though there is nothing to gainsay the possibility of some success. The Boston clinicians, whose judgment surely is tempered by a long and unusually extensive acquaintance with the situation, are not pessimistic. As they express it, "the prognosis of the diabetic child treated with insulin is still problematic; but clinical, therapeutic and pathologic evidence sets no bounds."

CEREALS AND EXPERIMENTAL RICKETS

Cereals occupy a prominent position in exemplary diet lists for older infants and children, and of all cereals oatmeal, because of its availability and content of vitamins, calcium and phosphorus, has been most strongly advocated. Recent research by Mellanby[1] calls attention to the lack of antirachitic vitamin in this food substance. Mellanby used puppies in the feeding experiments, controlling the exact amount of food taken by each animal. In several series of experiments the basic diet (powdered separated milk, meat without fat, orange juice, yeast, sodium chlorid and olive oil) was supplemented by various cereals, and the growth and health of the puppies were observed. Roentgenograms of the long bones were studied for evidence of the onset and development of rickets. When death ensued or the animals were killed, the histologic appearance of the long bones and their relative content of calcium were determined as additional evidence of the severity of the rachitic process.

By each criterion, puppies receiving oatmeal with the basic diet developed more marked and earlier rickets than those receiving the cereal component from other grains. Barley and wheat germ were found to favor the production of rickets as compared with rye, rice and white flour, but in a much lower degree than did oatmeal. The results were the same whether the oatmeal was given as ground oats, porridge or groats (hulled and crushed oats). The development of rickets was directly related to rapid growth. As the rickets became severe, there was a marked loss of appetite with a reduction of cereal intake, whereupon the rickets tended to improve. The most rapid early growths were recorded for the puppies eating oatmeal; and, as has been indicated, these animals developed severe cases of rickets, coincidently ceased to eat their full ration of cereal, and improved as the cereal intake was reduced. To a less marked extent, the same cycle was observed in the puppies fed wheat-germ for the cereal content of their diets.

---

[1] Joslin, E. P.; Root, H. F., and White, Priscilla: The Growth, Development and Prognosis of Diabetic Children, J. A. M. A. 85:420 (Aug. 8) 1925.

[1] Mellanby, Edward: Experimental Rickets: The Effect of Cereals and Their Interaction with Other Factors of Diet and Environment in Producing Rickets, London, His Majesty's Stationery Office, 1925.

The relation between rapid growth and the development of rickets is also emphasized by Eliot[2] in her paper read before the Section on Diseases of Children at the last session of the American Medical Association in Atlantic City. Dr. Eliot believes that rapidly growing breast-fed babies seldom escape some degree of rickets, and that cod liver oil should be given as a routine to breast-fed as well as to artificially fed babies in larger doses than have been in favor.

Mellanby found that the rachitic effect of cereals was at first lowered and then completely offset by substituting increasing increments of cod liver oil for the olive oil in the diet. When butter made up the fat ratio, it protected the animal from rickets due to the less desirable cereals only in case the calcium content of the diet was high. Separated milk with butter offset the rachitic tendency to a degree not accounted for by its calcium. The effects of vegetables in promoting calcium deposition in bones, and particularly in offsetting the more maleficent cereals, were in relation to their content of antirachitic vitamin. Irradiation of the puppies with ultraviolet rays, or of the cooked or uncooked cereal, nullified the effect of the rickets-promoting factor.

The nature of this factor has received the attention of the investigator, and both arguments and experiments are adduced to indicate that the carbohydrate, mineral, protein and nucleic acid fractions are innocent, and that the harmful factor rests in the saponifiable portion of the grain. Some noxious quality of cereals has been postulated in connection with maize in the diet of pellagrins, and oatmeal and other grains in the development of carious teeth.[3] The ubiquity of rickets, and the multiplicity and intricacy of the known causative factors, lend great interest to these investigations.

LAWLESS LAW ENFORCEMENT

Recently the collector of internal revenue at Nashville refused to register under the Harrison Narcotic Act twenty-five physicians who were under indictment for alleged violations of it. In 1922 a court of competent jurisdiction decided that a collector had no right to refuse registration under such circumstances, and the Bureau of Internal Revenue took no appeal from that decision. At that time the United States District Court for the Northern District of Georgia[1] thus disposed of the collector's claims:

> But to prohibit a practicing physician from prescribing narcotics unless he registers, and then to refuse to register him, would, to that extent, be to prohibit and regulate his practice of medicine, a thing within the province of the state, and not of the United States, and in contradiction of the revenue purposes of the act. . . . The determination of who may properly practice medicine or otherwise dispense drugs belongs to the agencies of the state. The collector must register on proper application all who are by the state law permitted to dispense them. He has no discretion in the matter.

In the present instance, the United States District Court of Nashville promptly arrived at a similar conclusion and directed the collector to register the Tennessee physicians. For the trouble, expense and undesirable publicity incident to the court proceedings, however, these physicians have no redress. Available reports do not disclose the nature of the offenses with which they were charged, the character of the evidence on which they were indicted or their professional standing. Their guilt or innocence can and should be promptly settled in an orderly course of judicial procedure. If they are convicted, lawful penalties can be enforced. But as was made perfectly clear by the court in the Starnes case cited, and as should have been known to the collector of internal revenue at Nashville, these matters have nothing to do with registration under the Harrison Narcotic Act. Referring to an order issued by the Commissioner of Internal Revenue to withhold registration from indicted or convicted persons, in that case the court said:

> The instruction of July 26, 1921, was not made by "the Commissioner of Internal Revenue with the approval of the Secretary of the Treasury," and so (was) not authorized by the act; but, if it were, in attempting to make a pending charge of crime a ground for refusing registration, it would be unsustainable. Even after the conviction, to do so would add a deprivation of vocation to the punishment fixed by law. Prior to conviction there is only an accusation of which the registrant is presumed to be innocent.

The decisions of the courts in the Georgia and Tennessee cases do not leave collectors of internal revenue helpless. They merely refer them back from lawless methods to lawful ones. If a collector has evidence that a physician has violated the Harrison Narcotic Act or the narcotic act of any state, he can institute prosecution in the proper federal or state courts. If a collector has evidence that a physician is unfit to practice medicine, he can file complaint with the licensing board of the state by which that physician was licensed. If the collector regards these measures as inadequate, he can appeal through proper channels to the proper legislative bodies to amend or supplement the Harrison Narcotic Act or the medical practice or narcotic acts of the state.

---

[2] Eliot, Martha M.: The Control of Rickets, this issue, p. ——.

[3] Mellanby, M.; Pattison, C. L., and Proud, J. W.: Effect of Diet on the Development and Extension of Caries in Teeth of Children, Brit. M. J. 2:354 (Aug. 30) 1924.

[1] Starnes v. Rose, Internal Revenue Collector, 282 Federal Reporter, 336.

The law, however, does not authorize a collector to use his own judgment to remedy what he may regard as defects in federal and state legislation. Such a procedure is not merely a trespass on the rights of the physician; it is an attempt unlawfully to infringe on the constitutional rights of the state itself. Such occurrences tend to break down the harmonious relations between the federal government and the states and to increase the odium already attached to the word "bureaucracy." The Harrison act penalizes the physician who fails to conform; what redress does it offer him when he loses time, money or professional standing through the misguided autocratic methods of those whom the government selects to enforce it?

Current Comment

LONG ISLAND JOURNAL ADOPTS COUNCIL STANDARDS

Year by year the Council on Pharmacy and Chemistry continues its efforts for the rational use of drugs. Carried on with the unselfish gift of time and thought by Council members, this work represents a devotion to professional ideals that should arouse the enthusiastic support not only of all physicians but of other scientists and laymen as well. Slowly but surely such recognition is coming. The resolution endorsing the Council's work, signed by every member of the House of Delegates at the San Francisco session in 1916, is only the official record of the increasing support and encouragement being given by individual members of the profession. On such support the Council must, in the last analysis, depend for the complete success of its efforts. Practically every medical journal of standing refuses today to accept advertisements of pharmaceutic preparations that have not met the Council's requirements. In this THE JOURNAL is naturally the pioneer, but its lead has been followed by all official organs of the various state medical associations, with the notable exception of the *Illinois Medical Journal*. The difficulty of financing a strictly professional journal is, no doubt, in a great measure responsible for the failure of some publications to close their advertising columns to any but Council accepted pharmaceutic products. That the best of these journals, however, desire to support the Council is shown by a letter just received from the business manager of the *Long Island Medical Journal* announcing the arrival of the hopefully anticipated time when his publication could afford to solicit advertising only from manufacturers of products that meet Council requirements. This journal is the official organ of the Associated Physicians of Long Island. It is a welcome addition to the ranks of supporters of the Council's efforts for the prevalence of rational therapeutics. Henceforth only such pharmaceutic products as are accepted for inclusion in New and Nonofficial Remedies will be advertised in the Long Island publication. If physicians will limit their prescriptions to such products in addition to those that are in the Pharmacopeia, medical publishers and progressive manufacturers will appreciate the encouragement.

AMERICAN INFLUENCE ON MEXICAN MEDICINE

American physicians may read with interest and pride the recent collection of papers from the Valdés clinic in Mexico.[1] Among the subjects discussed are carcinoma in the cervical stump following supravaginal hysterectomy; tonsillectomy; indications for sterilization in cesarean section; diagnosis in surgery; shock; pygomelus; Billroth I; primary carcinoma of the appendix; surgical bearing of anomalies of the gallduct; blood transfusion, and bladder diverticula. In the first paper, Dr. Ulises Valdés, chief of the clinic, sketches American influence on the progress of Mexican medicine. The Aztec surgeon dwells on the recent change, which has substituted American ideas for European, and especially French, conceptions. This change is reflected in the reading of physicians across the Rio Grande. Their libraries, we are told, are now filled with American textbooks, while, heading the list of medical publications, is the Spanish edition of THE JOURNAL. His generous tribute to American medicine is welcome. In acknowledging it we may borrow from his own eloquent statement: "Surgeons need no longer cross the ocean in search of new teachings and methods. All scientists are brothers."

A GREAT NEWSPAPER PUBLISHER DIES

In the recent death of Victor F. Lawson, publisher of the Chicago *Daily News*, the cause of public health has suffered as great a loss as has that of clean journalism. As one of the greatest newspaper properties in the United States, if not indeed in the world, the *Daily News* carries, and has for years carried, an enormous amount of advertising. About ten years ago much of the "patent medicine" advertising in the *Daily News* was open to serious criticism. A letter written to Mr. Lawson from the headquarters office of the American Medical Association calling his attention to the character of some of the "patent medicine" copy resulted in a drastic change in the methods governing the acceptance of advertisements of this type. Mr. Lawson immediately went to the expense of having analyses made of scores of "patent medicines" whose advertisements were offered to the *Daily News*. The chemists' reports were then turned over to his personal physician, who passed on the therapeutic claims made for the products in the light of the composition as shown by the analyses. If the physician's report was unfavorable, as in many, many instances it was, the advertisement was turned down. Mr. Lawson's physician was in constant touch with the Bureau of Investigation (Propaganda Department) of the American Medical Association, getting from it all the available information regarding widely advertised nostrums. While some of the medical advertisements in the Chicago *Daily News* are still open to criticism, the paper can fairly be classed as one of the cleanest in medical "copy" in the United States. More recently—in fact, just before his death—Mr. Lawson lent his personal interest and the service of his paper to the investigation and exposure, made by the Bureau of Investigation of the American Medical Association, of firms selling spectacles by mail. He established ideals which should inspire other editors and which, it is hoped, will continue to lead those responsible for the Chicago *News* in the future.

---

[1] Anales del Sanatorio Valdes 1, 1925, Mexico, D. F.

LOSS OF WEIGHT IN HOT AIR BATHS

Changes in body weight are not infrequently made the subject of concern for the physician. Usually his problem in this connection refers either to averting a loss of weight that is threatened by the ravages of disease or to the production of substantial gains during the years of adolescence and even later. Sometimes, however, he is expected to reduce body weight, particularly when it has advanced to the development of an unseemly figure. What the physician may be unwilling to advise in an attack on obesity is frequently undertaken without a qualm of conscience by one of the now numerous "physique specialists," who thrive on the mental, physical and esthetic discomforts of the obese. Among the schemes that enter into the "reduction treatments" are recommendations that inevitably lead to losses of water—and consequently decrease of weight—in the body. How striking and considerable they may be is shown in recent observations on the physiologic effects of hot air baths.[1] Exposure of the nude person to dry hot air for periods of an hour or more have led to weight losses of more than 600 gm. an hour. This is in striking contrast to the normal loss of 40 or 50 gm. an hour in room air. The difference on exposure to the hot air bath has been demonstrated to be due almost exclusively to the increased amount of visible perspiration rapidly removed by the hot, dry atmosphere. Inspection of the actual changes in metabolism showed only minor increases in the oxidation of body tissues following exposure to hot air. There is some increase in the temperature of the peripheral tissues; and consequently some stimulation of cell activity there may be assumed to occur. However, the augmentation of the metabolism amounted at most to 10 per cent. after a sojourn of from one to one and one-half hours in a hot air bath, whereas the loss of water was greatly accelerated. The drop in body weight may delight and encourage the candidate for reduction—until he discovers how easily water can be restored to its accustomed haunts in the body.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Health Officers' Meeting.—The sixth annual conference of county health officers of Alabama will be held at Montgomery, September 7-9. The subjects will be "The Control of Communicable Diseases," "Morbidity Reporting from the Health Officers' Point of View," "A Registration Area for Morbidity" and "The Evaluation of County Health Work." Among others, Dr. Samuel W. Welch, state health officer, Dr. John A. Ferrell of the International Health Board, and Drs. Leslie L. Lumsden and Joseph W. Mountin of the U. S. Public Health Service, will speak.

CALIFORNIA

Personal.—Dr. Beverly T. Young has been appointed health officer of Maricopa, to succeed Dr. Daniel W. Sooy.——Dr. W. H. Gatchell has been appointed health officer of the newly incorporated city of San Carlos in San Mateo County.

Society News.—Dr. Roscoe G. Van Nuys addressed the Alameda County Medical Society recently on "Living Anatomy: A Roentgen-Ray Study of Stomach, Liver and Colon in One Thousand Healthy Adults," and Dr. George Dock, Pasadena, addressed the Orange County Dental Society on "Focal Infection."

State Board Must Grant License.—Dr. Nathan P. Levin was granted a writ of mandamus by the state district court of appeals, July 30, which compelled the state board of medical examiners to grant him a license to practice medicine in California. The board had refused, it is reported, to grant a license on the ground that Levin had not complied with certain technical provisions of the state law.

Health Meetings at Long Beach.—The annual convention of California health officers and the regular Conference of Pacific Coast Health Officers will be held, September 28-October 3, at Long Beach, with headquarters at the Hotel Virginia. There will be a discussion of the diagnosis and control of infantile paralysis, rodent plague, community sanitation and other subjects. A trip to Catalina Island has been arranged as an entertainment feature.

Increase in Infantile Paralysis.—The state board of health reports that infantile paralysis is still on the increase and that in June there were seventy-six cases and in July 208, whereas last year there were only four cases reported in June and ten in July. There were fifty cases in the week ending July 18, fifty-seven in the week ending July 25, and fifty-five in the week ending Aug. 1, 1925. In the first six months of this year, there have been 383 cases, while in the same period last year there were forty.

COLORADO

Hospital News.—The Parkview Hospital, Pueblo, is preparing plans for a new building, which will cost $150,000.——A new hospital of sixty beds, costing $40,000, will be erected at the Soldiers' and Sailors' Home, Homelake.

Professors Appointed.—According to *Science*, Dr. Ralph Garfield Mills of Northwestern University Medical School, Chicago, has been appointed professor and head of the department of pathology, and Ivan C. Hall, Ph.D., of the University of California, professor and head of the department of bacteriology at the University of Colorado School of Medicine, Denver.

Medical Arts Building.—It was announced, August 10, that construction of the $3,000,000 Denver Medical Arts Building, to be called the "Tremont Building," will start, September 1. It will be exclusively for physicians and dentists, and be completed by Sept. 1, 1926. There will be twelve stories. The assembly room and library will be on the second floor. The garage in the basement will accommodate 150 cars.

Personal.—Dr. Philip Hillkowitz, Denver, has been elected president of the Jewish Consumptives' Relief Society, and Dr. Charles D. Spivak, Denver, secretary.——Dr. Robert M.

---

[1] Benedict, C. G.; Benedict, F. G., and Du Bois, L. F.: Some Physiological Effects of Hot Air Baths, Am. J. Physiol. **73**: 429 (July) 1925.

Burlingame, Denver, has been appointed full-time county physician.——Dr. Lloyd H. Ziegler, formerly associated with the Mayo Clinic, has been appointed resident psychiatrist in the Colorado Psychopathic Hospital, Denver, and will assume his duties, September 1.

CONNECTICUT

Another Connecticut Board.—A law enacted this year provides a state board of healing arts of three members, none of whom shall have received a degree from any school teaching any of the healing arts or be an employee of any kind of hospital. A high school graduate who submits satisfactory evidence that he is of good moral character and pays a fee of $5 may appear for written examination in anatomy, physiology, hygiene, pathology and diagnosis before the state board of healing arts, and if he shows a comprehensive knowledge of these subjects, he will receive a certificate permitting him to be examined by the Connecticut Medical Examining Board, or the Connecticut Homeopathic Medical Examining Board, or the Connecticut Eclectic Medical Examining Board, or the Connecticut Board of Osteopathic Registration and Examination, or the Connecticut Board of Chiropractic Examiners, or the Connecticut Board of Naturopathic Examiners. The Connecticut State Board of Healing Arts will act also as a grievance committee to hear complaints against any person practicing any of the healing arts and, after a hearing, will present a statement of the charges against any practitioner to the attorney general who, if it seems advisable, shall bring an action based on the charges in the superior court. The court may then order the license of said person revoked, or take such action as it may deem equitable.

ILLINOIS

Approval of Diagnostic Laboratories.—The state department of health has completed arrangements for issuing certificates of approval to diagnostic laboratories that do work which pertains to public health. To be eligible for a certificate of approval, the laboratory must be personally inspected by an agent of the state department of health and meet certain requirements as to equipment, personnel and character of work undertaken. The inspections for certification will be made only on request, and the certified laboratories will be required to perform tests on specimens furnished by the department from time to time. This undertaking is purely voluntary, there being no law that requires it.

Centennial Celebration.—Under the auspices of the Morgan County Medical Society, a centennial celebration was held at Jacksonville, August 13. There was a picnic luncheon on the Illinois College campus, where a marker was dedicated to the first medical school in the state. Dr. William Allen Pusey, Chicago, formerly President of the American Medical Association, gave an address. A marker was also dedicated on the home site of the first physician in Morgan County, 6 miles west of the city, and a marker was dedicated in honor of the first physician in Jacksonville at the site of his home and office. Dr. George W. Crile, Cleveland, gave an address at the dinner held at the Country Club in the evening.

Personal.—Dr. John C. White, Seatonville, a practitioner for fifty-seven years, has retired to enter the Knights of Pythias' home at Decatur. Dr. White is about 80 years of age.——Dr. George F. Way has resigned as a member of the board of health of Urbana.——Dr. Warner H. Newcomb, health officer of Suffolk, Va., has been appointed health officer of Morgan County and superintendent of the Oak Lawn Sanatorium, to succeed Dr. Thomas A. Mann, resigned.——Dr. Burt F. Crain, for the last six years on the staff of the Union Hospital, West Frankfort, has resigned, and Dr. James E. Williams, Bourbon, Mo., has been appointed to that position. Dr. John C. Black, on the staff of this hospital, also recently resigned.——Dr. Lee A. Stone, Chicago, lectured under the auspices of the Illinois Medical Society on "Community Defense" at Colusa, August 9.——Dr. Isaac D. Rawlings has been reappointed director of the state department of health for four years.

KENTUCKY

Personal.—Dr. John C. Morrison, Hickman, has been elected public health officer of Fulton County to succeed Dr. James M. Hubbard, who became the first incumbent of this office seven years ago.——Dr. Ernest V. Edwards, Mayfield, has been commissioned a member of the board of health of Graves County to succeed the late Dr. John L. Dismukes and Dr. John Ray Pryor, Mayfield, elected county health officer to succeed Dr. Dismukes.

LOUISIANA

Educational Car Commissioned.—The specially planned automobile of the Louisiana State Board of Health made its initial trip, August 19. It contains a portable laboratory for the examination of water, milk and products of bottling plants, and for the examination of malaria and hookworm specimens.

Personal.—Dr. Walter F. Henderson, roentgenologist for the Mississippi Baptist Hospital, Jackson, Miss., has been appointed head of the department of radiology, Touro Infirmary, New Orleans, to succeed Dr. Ernest C. Samuel and Dr. Eleazar R. Bowie. Dr. Henderson will assume his new duties September 1.

Child Welfare Clinic.—The child welfare bureau, New Orleans, has established a new clinic at Gentilly on Lavender Street behind the public school, which will provide maternity and infant service. The bureau has thirty nurses constantly at work on child welfare cases and five nurses who do only maternity work under the direction of Dr. C. Jeff Miller. Dr. William W. Butterworth is in charge of the baby service.

MAINE

Two-Day Clinic.—Under the auspices of the Penobscot County Medical Society, the Maine Public Health Association, the state board of health, and the Eastern Maine General Hospital, a clinic was held at that hospital, Bangor, August 18-19. The first day was given to clinical work at the hospital, with discussions by Drs. Channing Frothingham, Daniel F. Jones and Frederick J. Cotton, all of Boston. There was a banquet at the country club that evening. The second day's meeting was at the city hall and, among others, Dr. Clarence F. Kendall, commissioner of health, Dr. Albert W. Fellows and Dr. Carl R. O'Brien, all of Bangor, and Dr. Bertram L. Bryant, secretary of the Maine Medical Association, gave addresses.

MARYLAND

Lectures on Obstetrics.—The lectures to physicians on obstetrics by Dr. James H. Rowland, professor of obstetrics, University of Maryland, and other members of his staff, are being given at the Peninsular General Hospital, Salisbury, and at the Emergency Hospital, Annapolis, on prenatal care; the management of normal labor; postpartum care, and the pathology of pregnancy and labor.

Child Health Conferences.—In the three months ending August 15, child health conferences were held in nearly every section of the state. The number of places visited was ninety-one in twenty counties. More than 2,000 children were physically examined. No medical treatments were given, but children needing treatment were referred by letter to their own physician. About half of the conferences were held in connection with a visit of the Healthmobile, which will spend the remainder of the season on the Eastern Shore holding child health conferences in Queen Anne, Somerset and Wicomico counties.

MASSACHUSETTS

Personal.—Dr. Charles E. Prior has been appointed a member of the board of registration in medicine.——Dr. Frank H. Clough of Medfield has been appointed by the governor associate medical examiner of the seventh Norfolk district.

Harvard Medical Dormitory Assured.—Harvard University announces an additional gift of $575,000 by Harold S. Vanderbilt, '07, to complete the fund for the dormitory of the Harvard Medical School. Mr. Vanderbilt gave $125,000 last April for a gymnasium for the dormitory. The inclusion of the gymnasium in the dormitory is a precedent in medical education, and is part of the general movement for prevention rather than the cure of disease. Nearly 1,500 physicians have subscribed to the fund more than $110,000; about 600 other donors have given more than $200,000, and Harvard University has agreed to contribute about $300,000 as an investment. The campaign for the medical dormitory fund started in September, 1923. The dormitory will be erected opposite the entrance to the medical school at the corner of the Avenue Louis Pasteur and Longwood Avenue. The plans provide for a building for 250 students and leave space for a future addition for 150 students. The raising of the fund has been in charge of a committee of which Dr. Elliott P. Joslin (Harvard M.D., '95) is chairman and Dr. Francis M. Rackemann (Harvard M.D., '12) general secretary.

MICHIGAN

Fitter Families Contest.—A committee of Detroit physicians, under the chairmanship of Dr. George V. A. Brown, will conduct a Fitter Families Contest at the Michigan State Fair, which opens in that city, September 4. The object of the contest is to impress on the public the results of environment, health, education and heredity in the reproduction of the race and the results of scientific care in the selection of parents. A department has been set aside for the exclusive use of physicians, nurses and attendants, and contestants are assured that the entire proceedings will be strictly private. All families whose members are citizens of the state are eligible to enter the contest, but those which show obvious mental or physical defects will be refused entrance. The committee emphasizes that the contest will be a search for health and not for disease. A history of three immediate generations will be taken, a complete physical examination made, and a record of the results presented to the family. There will be no charge for the examinations, and the winning family in each class will be awarded a trophy. Classes will be (1) Large family; man, wife and five or more children. (2) Average family; man, wife and two to four children. (3) Small family; man, wife and one child. (4) Pair; man, wife and no children. The contest as well as certain exhibits to illustrate the mendelian law will be sponsored by the Eugenics Society of United States and endorsed by state and city organizations. This is the first of its kind to be held in Michigan. Such contests have been an annual feature of the Kansas State Fair since 1920, and other Western and Southern states have followed the example.

MINNESOTA

Memorial Tablet.—A bronze tablet in memory of the late Dr. John H. Adair, who was connected with the State School for Dependent and Neglected Children for thirty-four years, has been erected in the lobby of the school's hospital.

Infantile Paralysis.—Twenty-eight of the forty-nine cases of infantile paralysis reported during June and July were in Winona County in southeastern Minnesota, seventeen of which were in Winona City. There had been only two deaths up to July 20.

Personal.—Dr. Homer B. Annis, Minneapolis, has been elected an alumni trustee of Cornell College, Iowa.——Dr. Russell R. Noice has been appointed county physician by the Hennepin County Board of Commissioners to succeed Dr. Hugo J. A. J. Hartig, who was recently killed in an automobile accident.

Convalescent Home for Women.—The former Nurses' Home at 577 Oakland Avenue, St. Paul, is being operated by the Junior League of that city as a convalescent home for women, and the members guarantee its financial support for one year in advance. The Ramsey County Medical Society has endorsed the home.

Society News.—At the fifty-seventh annual meeting of the Wabasha County Medical Society, July 9, Dr. David S. Fleischhauer, Wabasha, was elected president; Dr. Ernest A. French, Plainview, vice president, and Dr. William F. Wilson, Lake City, secretary-treasurer. Among others, Dr. William C. MacCarty of the Mayo Clinic, Rochester, spoke on "Some of the Newer Developments in the Cancer Field."

MISSOURI

Biology Building.—With the gift of $1,000,000 to Washington University by Mr. Charles Rebstock of St. Louis will be erected a building for biology, costing $300,000; the remainder of the gift will be used for general endowment. This is one of the largest gifts the university has ever received from individuals, and differs from the usual donation in that no stipulations are attached.

Medical Society of the Missouri Valley.—The annual meeting of this society will be at St. Joseph, September 30-October 2, under the presidency of Dr. John W. Martin, Des Moines, Iowa. Among the speakers will be Dr. William D. Haggard, Nashville, Tenn., President of the American Medical Association, and Dr. Karl A. Meyer, Chicago, superintendent of the Cook County Hospital. There will be a symposium by members of the faculty of the University of Nebraska Medical College, another by members of the faculty of the University of Kansas School of Medicine, another by the University of Missouri Medical School, and another symposium on "Fractures." There will be diagnostic clinics Wednesday, Thursday and Friday mornings at the Hotel Robidoux. The St. Joseph Clinical Society will hold a two-day session at the various hospitals preceding the meeting. Programs may be obtained by addressing the secretary, Dr. Charles W. Fassett, 115 East Thirty-First Street, Kansas City, Mo.

NEW HAMPSHIRE

Resolutions of State Society.—At the recent annual meeting of the New Hampshire State Medical Society at Manchester, resolutions were passed disapproving the tax under the Harrison Narcotic Law, the tax on traveling expenses necessary in attending medical society meetings and the tax on expenses incurred in postgraduate study. A resolution was passed in favor of periodic medical examinations by the family physician, but disapproving them when performed by so-called "health services." A new position in the society was created—that of news correspondent to The Journal of the American Medical Association and to the *Boston Medical and Surgical Journal.* It was decided to hold the next meeting at Concord in May, 1926.

NEW JERSEY

Child Lepers at Carville.—Hale and Frank George, 11 and 13 years of age, respectively, who were placed under treatment for leprosy at the Soho Isolation Hospital, Newark, June 15, have been removed to the United States Leper Colony at Carville, La. There is said to be one other child, aged 5, from the Middle West at Carville.

Patrol of Shellfish Area.—Large signs of warning have been placed in conspicuous places in the condemned shellfish areas by the state department of health, whose funds do not permit efficient patrol of these areas. Atlantic City has assigned a policeman to patrol the waters in that vicinity and since January 1 has arrested twenty-six persons, each of whom was fined $25 and costs. There is a recent law making the second offense punishable by imprisonment for thirty days. The state department advises that local health boards in all sections of the state where condemned areas exist should provide a patrol to prevent gathering shellfish.

NEW YORK

Clinical Meeting of County Society.—The Orange County Medical Society held its third monthly clinical meeting in cooperation with the state medical society, July 21, at Port Jervis. Dr. N. B. Van Etten, president of the state medical society, spoke on the service of the state society to local physicians. Dr. Charles H. Smith, clinical professor of diseases of children, College of Physicians and Surgeons, New York, conducted a children's clinic.

Deaths from Excessive Heat.—There were 439 deaths in June in New York, which the state department of health says were attributed directly to the excessive heat which prevailed in the early part of that month; 357 of these were in New York City. There was a rise in mortality in June from heart diseases, most of which, it is said, was probably induced by the hot weather. The heat was also responsible for doubling the number of deaths from infantile diarrhea in New York City as compared with June, 1923. The general record of births and deaths in the state during June was less favorable than in any other June of the last eight years. There were 11,847 deaths, a rate of 13.2 per thousand population, and the excess of births over deaths, 8.6 per thousand population, was the lowest ever reported in the state since registration became practically complete. The volume of sickness, however, as indicated by the cases of reportable diseases, was lower than in the same month for the last five years, the greatest decrease being in measles, scarlet fever, whooping cough and pneumonia. There were more cases of influenza, smallpox and streptococcus sore throat—the outbreak of the latter, centering mainly in Saugerties and surrounding territory, registered 356 cases and four deaths; New York City had eight deaths from this disease.

New York City

Site for Veterans' Hospital.—The decision was made in Washington, August 10, by the Federal Hospitalization Board of the Veterans' Bureau to build the new 1,000-bed neuropsychiatric hospital for veterans on the 550-acre Hodgens estate at Northport on the Sound border of Long Island.

Increase in Diphtheria.—New York *Medical Week* summarizes that part of the annual report of the municipal bureau of preventable diseases for 1924 which pertains to diphtheria, showing that there were 9,687 cases in the city in 1924, as compared with 8,050 in 1923. There was an increase in the number of deaths also from 554 in 1923 to 714 in 1924, an increase of about 30 per cent. The borough of Brooklyn continues to show a higher morbidity and mortality rate from diphtheria than Manhattan. The borough of Richmond shows the highest death rate—22 per thousand of population.

Sebastiano Sechi.—Following complaints to the county medical society, a detective arrested Sebastiano Sechi, 324 East One Hundred and Sixteenth Street, on a charge of practicing medicine without a license. The detective applied to "the doctor" for treatment for stomach trouble and was told, according to reports, that he was suffering from disturbance of the liver and "a rupture." Sechi, who described himself as an "autopatic," is listed in the New York telephone directory as an M.D. He is said to have represented himself as a physician and charged the detective $3. He is not licensed as a physician in the city, nor does his name appear in the American Medical Directory.

Anti-Vaccination League.—A New York City newspaper announced a meeting of "The International Anti-Vaccination League," for August 20, at the Pennsylvania Hotel, Thirty-Third Street and Seventh Avenue, and invited all who oppose "vaccination and serumization" to come and bring their friends. The announcement further stated that the league was recently formed (the name indicates its purpose) and that its officers are "Dr. Benedict Lust, Dr. William S. Hill, Dr. Paul Stratmann, Dr. Hy. Schniring and Dr. Herbert M. Shelton." None of these names are to be found in the American Medical Directory and only that of Lust in the New York City telephone directory. "Dr." Lust, it appears, is a naturopath.

OHIO

Society News.—Dr. George W. Crile, Cleveland, will address the Summit County Medical Society, Akron, September 8, on "Problems Relating to the Liver and Biliary Tract."

Chiropractor Arrested.—W. E. Miner, a chiropractor of Upper Sandusky, was arrested, July 28, it is reported, on a charge of advertising himself as a doctor of chiropractic without having a license from the state medical board.

Lectures in Microscopy.—Professor L. Koeppe of the University of Halle, Germany, recently gave a course of lectures at the Lakeside Hospital, Cleveland, on "Slit-lamp Microscopy." According to the *American Journal of Ophthalmology*, this was the fifteenth course of lectures given by Professor Koeppe in the last year in this country; beginning September 15, he will lecture at the New York Eye and Ear Infirmary, New York.

Health Exhibits at Fairs.—The state department of health has purchased and equipped a truck with health exhibits which will visit fairs, first the Muskingum County Fair, at Zanesville, then the state fair at Columbus, making stops throughout the state per schedule. It will be in charge of the chief of the newly created bureau of health education, Dr. Harry E. Kleinschmidt. Last year the state department of health used borrowed army trucks and presented these exhibits at most of the state fairs.

PENNSYLVANIA

Conference at Cambridge Springs.—Physicians of the northwestern section of Pennsylvania and their wives will meet at Cambridge Springs, September 23. Dr. Carl A. Hamann, dean and professor of applied anatomy and clinical surgery, Western Reserve University School of Medicine, Cleveland, will deliver an address.

"Cathedral of Learning."—The University of Pittsburgh has appointed a building committee which, according to *Science*, is making preliminary surveys on the site for the fifty-two-story "Cathedral of Learning" of the university. It is expected that ground will be broken in October, $7,000,000 of the total of $10,000,000 necessary for the erection of the structure having been raised. The university has just completed a stadium, with a seating capacity of 70,000, at a cost of $2,100,000.

UTAH

State Medical Meeting and Postgraduate Course.—The thirty-first annual meeting of the Utah State Medical Association, and the postgraduate course of the association will be conducted at Salt Lake City, September 7-12. All meetings, clinics and courses will be held at the University of Utah. The council will meet Monday and daily thereafter, and the house of delegates at noon and 5 p. m. Monday and at noon September 8 at Stewart Hall. A caravan of automobiles will leave Salt Lake City Saturday preceding the meeting for Pocatello to bring guest speakers from the Idaho meeting to Salt Lake City. Those who will share in this trip should notify the president, Dr. Sol G. Kahn. The annual banquet will be Tuesday evening at the Hotel Utah, when the president will deliver his address. Among the speakers at this session will be Drs. Walter C. Alvarez, associate professor of research medicine, University of California Medical School; Joseph C. Beck, professor of otology, rhinology and laryngology, University of Illinois College of Medicine; William F. Braasch, professor of urology, University of Minnesota Post-Graduate School of Medicine, Mayo Clinic; Russell D. Carman, professor of roentgenology, University of Minnesota Post-Graduate School of Medicine, Mayo Clinic; George B. Eusterman, associate professor of medicine, University of Minnesota Post-Graduate School of Medicine, Mayo Clinic; Alexius M. Forster, chief of staff, Cragmor Sanitarium for Tuberculosis, Colorado Springs; Carl A. Hamann, dean and professor of applied anatomy and clinical surgery, Western Reserve University School of Medicine; Julius H. Hess, professor of pediatrics, University of Illinois College of Medicine; Edward Jackson, emeritus professor of ophthalmology, University of Colorado School of Medicine; Frank W. Lynch, professor of obstetrics and gynecology, University of California Medical School; John L. Porter, professor of orthopedic surgery, Northwestern University Medical School; Ernest Sachs, professor of clinical neurologic surgery, Washington University Medical School, and Wallace I. Terry, professor of surgery, University of California Medical School.

WASHINGTON

Dr. Barnhart Resigns.—Dr. Thomas C. Barnhart, Spokane, for ten years chief county physician and health officer, tendered his resignation, August 10, effective September 1. Dr. Barnhart will engage in private practice.

Personal.—Dr. and Mrs. Frank P. Klahr, Walla Walla, recently celebrated their golden wedding anniversary.——Dr. Henry Storgaard, Yakima, has been appointed county physician, to succeed the late Dr. Charles C. McCown.——Dr. Edward L. Brinson of Bellingham has been reappointed for two years health officer of Whatcom County.——The governor has reappointed Dr. James W. Doughty superintendent of the Northern State Hospital at Sedro-Woolley.

CANADA

Montreal Loans Building.—A contract has been made between the city of Montreal and the University of Montreal whereby the city gives the university the use of the Maissonneuve city hall temporarily a radium institute to be used as a hospital for the treatment of patients. Indigent patients sent there by the city will be treated free. When the new Incurables' Institution at Cartierville is completed, the radium institute will take up its quarters there.

Antituberculosis Work in Canada.—Sanatoriums for the treatment of tuberculosis have been established in every province of Canada with the exception of Prince Edward Island. The *Canadian Medical Association Journal* says that about $12,000,000 has been spent in the construction of these institutions, all of which are under the supervision of the provincial governments and are financially assisted by them. These sanatoriums provide facilities for the treatment of more than 5,000 patients, representing 635 beds per thousand deaths occurring annually from tuberculosis. The tuberculosis death rate in Canada dropped from 180 per hundred thousand in 1901 to 84.7 in 1924. This, it is said, is the lowest rate on this continent or in continental Europe. In furthering this campaign, the dominion government, the provincial governments and many municipal governments, the medical profession, the Red Cross and the Anti-Tuberculosis Association of Canada have all been active. At the same time, attention is being paid to tuberculosis in cattle. More than $2,000,000 is spent annually in the inspection of herds and the removal of animals seriously affected.

PHILIPPINE ISLANDS

Manila Free from Smallpox.—The report of the Philippine Health Service for 1923, which has just been received, shows that the city of Manila has been free from smallpox since 1921, and that no deaths from cholera occurred in Manila in 1923. In all, 2,132,653 persons were vaccinated against smallpox in the islands in that year, and an immunization campaign was conducted in which about 103,000 persons received the first injection of anticholera vaccine, more than 80,000 persons the first injection of antityphoid vaccine, and almost by judges to make the greatest possible use of the alternatives to detention. Laws excluding children from prison and providing for the treatment of mental defectives in special institutions had contributed to the reduction, and so also had the provision of training in Borstal institutions for offenders between the ages of 16 and 21, for the majority on release became law-abiding citizens.

TWO EXPERIMENTS IN PROGRESS

The international administration of our prisons had been transformed. A new classification prevented the contamination of young offenders by hardened criminals. In addition to separating young persons of from 16 to 21, we were now separating young men of from 21 to 25 from the older men. Two interesting experiments were being carried on. Separate confinement had been almost entirely abolished. Prisoners worked an eight hour day in well ventilated shops. Until 1922 there had been only elementary instruction for young persons and illiterate; the general body of adult prisoners received no education. There was now a large scheme of adult education on a voluntary basis, a rather remarkable change in prison life. Prison libraries had been improved out of all knowledge in the last fifty years. The general effect of the changed conditions was to substitute for the old system of stern repression and personal degradation a new system of strenuous, hard training and education, in which the cooperation of the prisoner was secured as soon as possible.

The following resolutions were adopted by the congress: Judicial studies should be supplemented by criminologic studies, magistrates before appointment being required to attend lectures on psychology, sociology, forensic psychiatry, and penology. A judge before sentencing should possess, by means of inquiries made by the police, "a full knowledge of the physical and psychic conditions and the social life of the accused and the motives of the crimes." As the prevention of contamination is one of the first essentials in prison treatment, prisoners should be classified according to character and ability to be reformed, and, when possible, prisoners of different classes should be confined in different buildings. Pecuniary payments should be made to prisoners for work done by them, such payments being utilized "for the purpose of repaying the liabilities of the prisoner, both to the state and to his victims, after reasonable provision has been made for the prisoner's wife and family." Abnormal adults showing dangerous tendencies should be sent to nonpenal institutions or colonies, and if such persons are conditionally discharged effective after-care and close supervision are necessary measures.

Spahlinger's Treatment of Tuberculosis

Mr. Spahlinger has not been successful in his quest for financial support in this country for the production of his serum, in spite of the favorable report of the medical members of parliament who recently visited his laboratory at Carouse. Both his home and his laboratory are threatened by a bill of sale, which falls due at the end of September. In these circumstances Mr. Spahlinger, who hopes that in the meantime he may receive sufficient support to obviate this disaster, has agreed to the request of the Bovine Tuberculosis Committee at Crewe to test his serum for inoculating cattle against tuberculosis. Similar tests are stated to have already been carried out at Geneva with good results, and should the tuberculosis committee at Crewe, which consists of veterinary surgeons, be convinced of the value of the serum for cattle, Mr. Spahlinger would be prepared to enter into an arrangement which would give him the necessary sum for carrying on his work for human beings. Mr. Spahlinger is offering his serum for cattle first of all to this country in gratitude for the support he has received from the British public. He asserts that if his treatment for cattle were generally adopted in this country it would greatly increase the value of British dairy products, and many thousands of people, especially children, who get infected milk or other dairy products would escape tuberculosis.

An Institute for Otology

The Middlesex Hospital Medical School has received a gift of $100,000 from Mr. Thomas Robinson Ferens of Hull, for the foundation of an institute of otology, to be devoted to research into the structure, functions and diseases of the ear, nose and throat. When the Ferens Institute opens, early next year, postgraduate students from America and the dominions will be able to complete their studies in London, and English students will no longer find it essential to take a course on the continent. The institute will occupy at first a portion of the top floor of newly reconditioned buildings, to which patients will be removed during the rebuilding of the Middlesex Hospital. Here it is intended to establish a laboratory, museum and library, entirely devoted to research in diseases of the ear, nose and throat. Graduates in medicine who intend to become specialists in otology will attend for further study and research, and it is hoped in time to strengthen the institute by the establishment of scholarships; but, for these, further endowments will be required. This gift to the Middlesex Hospital Medical School is one of the series of gifts by Mr. T. R. Ferens to the cause of education. Identified throughout his business and public career with Hull, he has lately set aside $1,250,000 for the building of a university college in that city.

BELGIUM

(From Our Regular Correspondent)

Aug. 4, 1925.

Brussels Medical Conference

The Brussels medical conference, or the Journées médicales so called, is meeting with increasing success every year. It synthesizes national medical activities. In addition to the national representation, many foreign scientists take part in the convention. The collaboration of French scientists constitutes a strong link between French and Belgian physicians. The Journées médicales have been developed to organize for physicians located at some distance from the medical centers a practical general review, in the form of a few days spent in the hospitals, of the progress of medicine during the current year. In this connection, the collaboration of the four Belgian universities has been a powerful aid.

The opening meeting, which was attended by the queen, took on a ceremonial character, which was partly due to the fact that it was held in the Palais des Académies. Many foreign delegates were present: Drs. Vincent (France), Bandelac de Pariente (Spain), Kashiwado (Japan), Zota (Roumania), Ernst (Switzerland), Prüm (Luxembourg) and Abadie (Algeria). M. Brachet, in the opening address, defined the rôle of medicine and anticipated what might be expected in the future.

Dr. Maurice de Fleury, member of the Academy of Medicine of Paris, opened the medical convention proper with an address on psychiatry in relation to psychology. He pointed out that in the vast domain of psychoses two large groups must be distinguished: first, psychoses provoked by lesions of the nerve centers, which are well defined psychoses of a chaotic character and which may end in dementia; secondly, mental affections lacking any anatomic substratum, which result from a constitutional hereditary predisposition, which gives the affection a peculiar stamp and allows of its classification. The speaker discussed more particularly the second group, the profound study of which has been the work of the

French school and has led to a classification at once simple and rational. The second group of psychoses comprises five varieties of well defined affections: (1) the cyclothymic psychosis characterized by an alteration of the patient's activities; (2) the emotive psychosis determined by disorders of the emotions; (3) the perverse psychosis characterized by a lack of kindliness; (4) the mythomanic psychosis associated with a perversion of the social instinct, and (5) paranoia, which is marked by arrogance and self-love.

We can mention more in detail only a few of the principal topics discussed:

THE TRANSMISSION OF HUMORS

Dr. Demoor of Brussels explained the significance of the humors in physiology and pathology. Besides the nervous system, whose regulatory power over the tissues was first reviewed, there is a supplementary humoral mechanism. The substances that play a part in humoral regulation do not have a specific action, for, if the properties of the environment are modified, very different effects are secured as the result of the same humoral or nervous excitation. The author recounted the results of a large number of experiments with epinephrin, on the heart and on uterine anaphylaxis, illustrating the prodigious rôle that humors play in all vital phenomena.

THE HEALTH OF THE STOMATOLOGIST

M. Lebrun discussed the pathology of the dentist, who, like many other medical specialists, is exposed to many influences affecting his health which are due to professional factors. Lebrun considered the various affections, dwelling particularly on those that are due to standing long in the same position—digestive troubles and postural troubles, especially metatarsalgia.

TREATMENT OF BACTERIAL INFECTIONS

Sir Almroth Edward Wright took up (in French) the treatment of bacterial infections. He gave an account of antityphoid vaccination and the trials of therapeutic vaccination. The determination of the opsonic index is very useful. It is owing to this method that the complete failure of all forms of vaccinotherapy in tuberculosis has been established. He emphasized, however, the good results he had secured in certain forms of staphylococcemia by immunotransfusion.

SEROTHERAPY IN GAS GANGRENE

Dr. Vincent, medical inspector general, reported the results secured by the use of polyvalent antigangrene serum. The results obtained in war wounds have established that the number of cases presenting gas gangrene may be reduced 80 per cent. All lesions adjacent to the digestive tract may be complicated by gangrene. In parabuccal abscesses, Ludwig's angina, pulmonary and pleural gangrene, perirectal abscesses, diabetic gangrene, and many other affections, but especially gangrenous appendicitis, serotherapy to prevent gas gangrene may be indicated.

VERTEBRAL RHEUMATISM

Dr. Leri described the pathologic anatomy and the very characteristic symptomatology of vertebral rheumatism, which must not be confused with rhizomelic spondylitis, which is usually of gonorrheal origin. The treatment for rhizomelic spondylitis, during the period of evolution, is, etiologically, the treatment of gonorrhea, and, secondarily, from the orthopedic standpoint, maintenance of the patient in a correct position. Once the ankylosis is established, the author does not believe in the efficacy of surgical treatment. Resections of the hip have accomplished nothing. The creation of subtrochanteric nearthrosis is being tried. As for vertebral rheumatism, a special diet and heat applications (more especially in the form of diathermy) are indicated; also irradiations, and, in certain rebellious cases, the surgical removal of an osteophyte impinging on a nerve root.

THE ANTIDIPHTHERIA CAMPAIGN

In connection with the various aspects of the antidiphtheria campaign and antidiphtheritic treatment, Dr. Vernieuwe made a comparison of American and European serums. In his opinion, the former are more rational; first, because of their greater concentration (they contain less of different albumins and thus diminish the dangers of anaphylaxis), and, secondly, because of the nature of the antiseptic that they contain. School physicians, in view of prophylaxis, often refer to the policlinic children who are said to be diphtheria carriers; Physicians should be very circumspect about declaring that a child is a germ carrier and should be fully assured that the organisms concerned are the Loeffler bacillus and not pseudodiphtheritic. Children are in excellent health, as a rule, and actual carriers of diphtheria bacilli are rare. In the majority of cases, when an epidemic of diphtheria persists in a school, it is because a child is affected with diphtheritic rhinitis. The Schick test will often aid in detecting diphtheria carriers. The injection of serum is the best prophylactic treatment for persons exposed to diphtheria. The active immunity secured by the injection of a toxin-antitoxin mixture is very satisfactory. This form of vaccination is harmless and should become more general.

TUMORS AND DISEASES AFFECTING THE CHROMATIN

Dr. Dustin of Brussels expounded his ideas of cancer, which he holds to be a disease of the cell-nucleus and the chromatin. The cancer problem is a problem of the nucleus and many cancerogenic substances that provoke a diseased condition of the chromatin. Dustin brought out that pyknotic destruction is in reality an excitation to karyokinesis and that the pyknotic wave is followed by a kinetic wave. This throws light on the cancerogenic rôle that certain substances may play which provoke nuclear pyknosis. We are thus compelled to take account of the multiplicity of agents that may provoke cancer and of the difficulties that the problem of the origin of cancer imposes.

THE REMOTE RESULTS OF THE WILLEMS METHOD

The method of immediate active mobilization recommended by Professor Willems in traumatic arthritis is well known. It has sometimes been objected that excellent primary results are followed by unsatisfactory functioning of the joints. To meet this objection, Professor Willems has reinvestigated all the cases observed by him during the past seven or eight years, following which he affirms: 1. The maintenance of an excellent condition of the musculature of the affected member; the musculature is, in the great majority of cases, practically equal to that of the healthy member. 2. The almost constant presence of osteophytes on the epiphyses of the traumatized joints, and constant on the epiphyses of the joints that are the seat of a suppuration. Strangely peculiar is the fact that these osteophytes are never turned toward the joint but extend toward the epiphysis and do *not impair* the movements of the joints. 3. The persistence of perfect mobility and the absence of any serious pain in the patients, who experience only slight rheumatoid pains in connection with changes of the weather or periods of inaction. It is a peculiar fact that, whenever one of these patients has changed his occupation, he has chosen a calling requiring even greater activity of the traumatized joint than his previous work.

Numerous fêtes and receptions were interspersed with the scientific meetings. The convention, or Journées médicales, was terminated by an excursion to Bruges, where a number of lectures on medical art were given. Bruges is known for its excellent museum and its remarkable St. Jean Hospital. A medicosurgical exhibit and a medical studio added to the interest of the conference. Paintings, drawings and aquarelles—all the work of physicians—presented a beautiful play of colors. Dr. Lambotte, the originator of osteosynthesis, furnished a surprise by his exhibit of some marvelously fine violins. Physicians often seek some means of forgetting, for the time being, their profession. This second exhibit of objets d'art gave abundant evidence of their ability to excel in the fine arts.

NETHERLANDS

(From Our Regular Correspondent)

Aug. 5, 1925.

Health Insurance for the Middle Classes

The committee appointed by the Nederlandsche Maatschappij tot Bevordering der Geneeskunst discussed, at a recent meeting, the possible ways of creating a health insurance society for the benefit of the middle classes. Important statistical information has been secured; tentative plans and provisional budgets have been drawn up, and inquiries in regard to similar institutions in foreign countries have been conducted. As a result of its investigations, the committee has recommended that the Nederlandsche Mattschappij tot Bevordering der Geneeskunst collaborate in the creation of such an institution. The good relations that exist in other health insurance societies between medical superintendents or inspectors and medical practitioners favor the development of a new health insurance society for the middle classes.

The Antiplague Crusade in Java

Since the beginning of 1924, the antiplague services in Java have become self-governing, being now served by sixteen health officers. In some regions the case incidence has diminished rapidly. In other sections, notably Bojolali, Magelang and Temangung, there has been some recrudescence. The vaccinations that have been tried on several previous occasions have been discontinued, as the results were of doubtful value. On the other hand, every effort has been made to improve the housing conditions. During the year 1923 more than 50,000 houses were put in better condition, while the deratization crews succeeded in capturing more than 130,000 animals. In spite of these preventive measures, more than 8,500 new cases of plague developed during 1923.

A Study on Goiter

A comprehensive study on the characteristics of goiter in the Netherlands has been published by De Jong. It is a remarkable fact that goiter does not develop in the lowlands in the same manner that it does in the mountainous regions. In the latter, the thyroid body has a large development in the new-born, whereas congenital goiter is rare in the plain country. Likewise, in the lowlands few cases of goiter are observed in school children, whereas in Switzerland, beginning with school age, hypertrophy of the thyroid gland is quite general. Great differences are observed also in the clinical types; for example, there is little cretinism in the low countries, and exophthalmic goiter often presents an incomplete syndrome. From the anatomic standpoint, lesions with large colloidal cysts are observed. It seems that, geographically, more goiters are noted along the banks of bodies of water than elsewhere.

Medical Statistics

According to the medical yearbook (Geneeskundig Jaarboekje), the number of physicians in the Netherlands increased from 3,646 in 1923 to 3,855 in 1924. There was a corresponding increase of students—from 2,018 to 2,120, of whom 195 were women. The medical school having the largest number of students was that of the University of Leyden (625).

Municipal Control of the Sale of Milk in Amsterdam

In several previous letters I have referred to plans for the sale of milk in Amsterdam. A committee appointed by the municipal council of Amsterdam has recently published a report on the question, and proposes the municipalization of the purchase and treatment of milk, distribution to be left to private trade, subject to certain conditions as to the selling price and other matters. The monopoly in the purchase and treatment of the milk supply would be effected through a central organization having a director and assisted by a council, composed, among others, of producers and consumers. The purchase at a price varying with the changing value of the product would be made, preferably from the farmers' organizations in the immediate vicinity of Amsterdam, and, secondarily, would be procured from the farms in the provinces of North and South Holland, and, eventually, Friesland. The milk thus procured would be sent first to seven receiving stations located in the several provinces (but controlled by the central organization), where it would be purified and refrigerated, and, in certain instances, subjected to pasteurization. All the milk that the wholesale dealers in the city receive direct or through the mediation of the seven receiving stations would be subjected to pasteurization in the city and would be sold to large consumers, in milk cans, or would be put up in bottles for the retail trade, retail merchants being compelled to call at the central stations for their daily supply. It is expected that in this manner a most excellent quality of milk will be furnished, since the milk will be pasteurized at 63 C. (145 F.) in the vessels in which it is to be delivered. That is why the centralization of the pasteurizing operation in the wholesale establishments in Amsterdam seemed indispensable. Double pasteurization was considered but was not approved in view of the deteriorating effect on the vitamins. It was thought that cooling the milk to 8 C. (46 F.) at the receiving stations in the provinces would usually suffice to prevent the growth of bacteria until it reached the stations in Amsterdam, where it was to be pasteurized. However, this proposition has not been accepted without protest. It is urged that in some instances thirty-six hours would thus elapse before the milk would be pasteurized. The committee authorized, therefore, that, in case of hot weather or unduly long distances, milk might, by way of exception, be pasteurized before it was forwarded to the city. Many further objections have been raised to the proposed plan; more particularly, that the price of milk would be inevitably increased as the result of such a system of organization. It is held that the equipment of pasteurization plants, receiving stations in the provinces and distributing stations in the city, together with indemnities that would have to be paid, would represent a capital of eighteen million florins, or approximately seven million dollars.

Instruction in Public Health

The public health council appointed, some time ago, a commission to study into the question of instruction in public health. The minister of public health, also, took an interest in the question, and a plan has been proposed for the organization of such instruction and for the establishment of the conditions for securing the degree of doctor of public health.

The Enforced Abandonment of Medical Practice

A plan which interests the whole medical profession and which breaks with ancient traditions universally accepted was proposed some time ago at a medical convention. It came up again recently in the discussion on the organization of a council on medical ethics, which I have already mentioned in previous letters. It is the question of the involuntary abandonment of a medical practice. It is proposed that if a medical tribunal shall decide that a practitioner because of physical or mental incapacities is unable to continue the practice of medicine, such a practitioner shall be entitled to a pension or annuity payable by the state. Voluntary abandonment of a practice would not, of course, entitle a physician to an annuity. Only in special and carefully investigated cases would such a right obtain. In any event, the idea of pensioning a physician declared incapacitated and unable to continue his professional practice deserves to be mentioned. It is apparently the first time in history that a state has shown an interest in the future of members of a liberal and independent profession who become incapacitated.

Accidents from Neo-Arsphenamin

Following numerous accidents observed in Javanese, resulting from the injection of neo-arsphenamin, Dr. Kuyer has published *(Tijdschr. v. Ned.-Indie)* a study on the special sensitiveness of Javanese to this drug. The therapeutic arsenical had been administered mainly in cases of tertiary frambesia. During 1922, Kuyer observed in 118 patients five cases of dermatitis due to the remedy. In one case there was a fatal outcome. The number of injections received by these five patients had averaged three and one-half, with 1.7 gm. of neo-arsphenamin. In 1923, he reduced the dose per injection to from 0.3 to 0.4 gm., or, by way of exception, 0.6 gm. The course of treatment did not exceed 1.41 gm. Of 103 persons receiving injections of neo-arsphenamin, there was one case of collapse (after the injection of 0.3 gm. in a healthy man), two cases of exanthem, one case of generalized exfoliative dermatitis, and one fatal case after three injections of 0.3 gm. in a woman, probably due to hemorrhagic encephalitis. Since the occurrence of these grave accidents, Kuyer no longer administers to an adult Javanese more than four injections of neo-arsphenamin, of 0.3 gm. each, at intervals of one week.

VIENNA

(From Our Regular Correspondent)

Aug. 2, 1925.

The New Medical Curriculum

According to the draft of the new law, which is not likely to be changed materially before its passage, the medical curriculum in Austria will be divided into two parts. Part 1 covers five semesters' and Part 2 six semesters' work. The first semester, the student must take six hours a week of systematic anatomy; five hours each of zoology, physics and chemistry, in the forenoon, and six hours of dissection and five hours of laboratory chemistry in the afternoons, and possibly three hours of botany, in addition. The second semester calls for six hours of dissection, five hours of chemistry and five hours of chemical laboratory work per week. The third semester requires (forenoons) six hours of physiology, five hours of histology, three hours of embryology and three hours of topographic anatomy; afternoons, six hours of dissection, three hours of physiology laboratory work and likewise three hours of physiologic chemistry each week. The fourth semester provides for (forenoons) six hours of physiology and three hours of topographic anatomy each week; afternoons, five hours of laboratory histology, three hours of physiology laboratory work, and possibly four hours of laboratory work in embryology each week. The fifth semester, previous to New Year's, the student must pass tests in a number of subjects. During this period he need not attend lectures unless he desires. Part 2 of the course begins after New Year's, in the fifth semester. Part 2 commences with practical training in the application of medicine: elementary clinical study and care of patients, introductory courses in surgery, obstetrics and gynecology (each five hours weekly); also five hours of pathologic anatomy and two hours of pharmacology each week. The sixth semester, the student will take internal medicine and internal surgery, each seven and a half hours, and five hours each of pathologic anatomy and general experimental pathology, and, in addition (afternoons), three hours of dissection in pathologic anatomy and four hours of laboratory work in pathologic histology. In the seventh semester, the student takes up again internal medicine and surgery, each seven and a half hours; dermatology and syphilis, five hours; pathologic anatomy, five hours; pharmacology, four hours, and general experimental pathology, five hours. In the eighth semester, the course provides for: internal medicine and surgery, gynecology and obstetrics, seven and a half hours each; afternoons, dermatosyphilology and otolaryngology, five hours each; in addition, four hours of prescription writing. In the ninth semester, materia medica and gynecology, seven and a half hours each, are provided; also psychiatry and hygiene, five hours each, and legal medicine, four hours. The tenth semester opens with ophthalmology, pediatrics and hygiene, five hours each; also three hours each of dentistry, bacteriology, and practical work in legal medicine. In the eleventh and last semester, up to New Year's, the student will devote himself to surgery, seven and a half hours, and to ophthalmology and pediatrics, five hours each. The new subjects in this curriculum (the number of hours is always to be taken as "weekly") are dentistry and otolaryngology, which heretofore have not been obligatory. The examinations will cover: Part 1 of the so-called "Rigorosum" (the test for doctor of medicine): (1) zoology, (2) physics, (3) medical chemistry (including physiologic chemistry), (4) anatomy, (5) histology, (6) physiology. The tests in zoology and physics will be on the theory only; the tests in other subjects will be both from the theoretical and the practical standpoint. The tests in zoology and physics are taken in the second semester. If the student secures a good grade in these two subjects, he will be permitted to take the tests in the other subjects of Part 1 of the "Rigorosum" some time during the fifth semester, the practical examination coming first and the tests on the theory being taken a little later. Part 2 of the "Rigorosum" will comprise tests in: (1) pathologic anatomy and histology, (2) general experimental pathology, (3) pharmacology and prescription writing, (4) hygiene and legal medicine. Part 3 of the "Rigorosum" will include, as the last of the tests: (1) internal medicine, (2) surgery, (3) gynecology, (4) pediatrics, (5) ophthalmology, (6) dermatology and syphilis, (7) psychiatry and neurology, (8) otolaryingology. Parts 2 and 3 of the "Rigorosum" cannot be passed off until after the work of the tenth semester has been completed, and, as a rule, all three parts of the final examination must be taken at the same university; exceptions may, however, be made in view of peculiar conditions. If a candidate for the doctor's degree fails in three subjects of Part 1 of the "Rigorosum" (not counting zoology and physics), either in the individual practical tests or in the general test on theory, he is forever excluded from the continuation of his medical studies in Austria; nor may he secure a diploma in a foreign country and have it ratified in Austria on the basis of reciprocity. The student will likewise be excluded from further medical study if he does not pass Part 1 of the "Rigorosum" within five years after his first matriculation. These two new provisions of the law are particularly drastic, and some doubt is expressed whether it will be possible to enforce them. Internship must cover a period of at least nine months. The preliminary three months may be taken during the fifth semester in the form of propedeutics; the remaining six months must be served as an intern in a clinic or hospital ward under the direction and supervision of the administration. The student may also be allowed to serve these six months during his vacations. During a period of at least two months he must serve in a department of internal medicine; but must not serve less than one month in any given institution. He will not receive his diploma as doctor of medicine until he has completed his nine months of internship. Students are referred to clinics or hospitals by the university authorities. The new curriculum, if it becomes a law, will go into effect with the beginning of the school year 1925-1926. All students who began their medical studies since October, 1922, will be under obligations to serve at least six months as intern before receiving their diploma. As a general thing, the medical course as it will be constituted will cover a period of six years, since most students will prefer to take their final examinations after they have served their six months' internship, as their preparation will be considerably better, at that time.

BERLIN

(From Our Regular Correspondent)

Aug. 8, 1925.

Micro-Organisms in Malignant Tumors

Immediately following the publications of Dr. Gye and Mr. J. E. Barnard in the *Lancet*, Dr. Räth, an assistant of Professor Binz, director of the chemical institute of the Berlin agricultural school, published in the *Zeitschrift für angewandte Chemie* of July 23 a short communication, from which it appears that he, also, has succeeded in finding micro-organisms in carcinoma. He said in part:

> If one subjects extirpated carcinomas of man or of animals to a definite chemical process, one may secure micro-organisms from the decomposition product through cultivation on agar. That these organisms must have originated in the tumors in question cannot be denied. Organisms have been found in this manner in cancer of the breast, cancer of the liver, skin carcinoma, uterine carcinoma and carcinoma of the jaws. It seems almost superfluous to state that the utmost precautions were taken to prevent the invasion of micro-organisms from the outside. Even during their cultivation on agar or bouillon, the micro-organisms are subject to morphologic changes. Pure cultures, several days old, show, on observation with a No. 10 Zeiss lens (oil immersion, eye-piece 15), short, spore-forming bacilli, somewhat thickened in the middle. During their growth, substances with the odor of the lower fatty acids develop. When the bacillus is transferred to animals, many tumor formations of carcinomatous character are obtained.
>
> From the tumors that yielded these micro-organisms following this chemical process no such organisms could be obtained before the chemical treatment. It is assumed that the chemical process removed investing membranes or coverings, which prevent an independent growth of the micro-organism outside the animal body. Whether the occurrence of this bacillus in the tumors justifies the conclusion that it is the causative agent of the cancer, or whether its occurrence constitutes merely a necessary associated phenomenon, it is impossible to decide, owing to the extraordinary difficulties of the subject, although the former conception is the more plausible, especially in view of the fact that, in certain instances, it has been possible, on transferring the parasites to animals, to produce growths of tumor-like character.

Death of Bernhard Naunyn

Prof. Dr. Bernhard Naunyn (Geheimer Medizinalrat), the patriarch of German clinical medicine, who has been living in retirement at Baden-Baden since 1904, has died, after a short illness, at the age of 85. Up to the very last he retained the same alertness of mind revealed in his recently published reminiscences.

A decisive influence on Naunyn's career was exerted by the highly gifted Frerichs, who took an active interest in him and in 1862 made him his assistant in the first medical clinic of the Charité Hospital in Berlin. Here Naunyn contributed to the progress of clinical medicine by studies in pathologic anatomy, medical chemistry and experimental pathology. His researches in Frerichs' clinic, more especially his fundamental studies on fevers in general and on jaundice, were instrumental in procuring for Naunyn a call to the University of Tartu (then Dorpat) as professor extraordinarius and director of the clinic of internal medicine. In 1871, he was called in the same capacity to the University of Bern (Switzerland) and the following year to Königsberg (East Prussia), when Ernst von Leyden was invited to the newly founded imperial university at Strasbourg. In 1888, also, Naunyn went to Strasbourg as the successor of Kussmaul, where he remained until 1904, when he retired from active work and settled in Baden-Baden.

As clinician in Strasbourg, Naunyn continued some of his earlier researches, and also opened up new paths of investigation, particularly in the field of nervous diseases. He took part in the studies on the localization of diseases of the brain, especially aphasia; also on brain pressure and on pain sensations and disturbances of sensation in the skin. Two of his works deserve especial mention: his description of gallstone disease and his handbook on diabetes, both of which are still indispensable to the investigator of these subjects. In 1873, in collaboration with Klebs and Schmiedeberg, Naunyn founded the *Archiv für experimentelle Pathologie und Pharmakologie*. Cooperating with Mikulicz, he created in 1878 the *Mitteilungen aus den Grenzgebieten der Medizin und Chirurgie*, in which he often wielded a lance in the controversial question as to when cases in internal medicine should be referred to the surgeon for further treatment. Many of Naunyn's pupils have achieved distinction in medicine and a number have occupied chairs in various universities. I may mention, among others, Stadelmann, Magnus-Levy, Minkowski, Schreiber and Weintraud.

After his retirement from his chair in the University of Strasbourg, Naunyn continued to discuss with great acumen and general approval many of the questions affecting the medical profession at large. During the Great War, he was very devoted in his interest in and care of sick soldiers.

Marriages

Gilbert Martin Loewe, Winnetka, Ill., to Miss Alm Meertief Nachman of Montgomery, Ala., May 14.

William Riley Brooksher, Jr., to Miss Thelma G Stephens, both of Fort Smith, Ark., June 3.

Andrew Grant Cowles, Ardmore, Okla., to Miss Ruth E Chapman of Waxahachie, Texas, May 12.

Thomas Morrow Sayre, Monroe, La., to Miss Doroth Carter of New Orleans, June 18.

Perry Haynes Wiseman, Henrietta, N. C., to Miss Grac Florence Furrh of Troy, July 7.

William H. Broeder, St. Louis, to Miss Clara L. Hoeckel of West Jackson, Mo., July 16.

Henry Bernis Alsobrook to Miss Ethel Irene Smith, bot of New Orleans, June 17.

Louis David McGuire, Omaha, to Miss Margaret Rau Austin, Minn., April 16.

Alfred G. Langmann to Miss Margot P. Hesse, both New York, June 3.

Elmer R. Porter to Miss Nellie Holingsbaugh, both Omaha, April 23.

Deaths

Archa Kelly West, Oklahoma City, Okla.; Memphis Hospital Medical College, Memphis, Tenn., 1894; member and past president of the Oklahoma State Medical Association; professor of medicine, University of Oklahoma School of Medicine; served as delegate, 1907-1908, to the American Medical Association; mayor of Smithville, 1897-1899; aged 60; died, August 10, at Salina, Colo., of heart disease.

John Henry Burke, Brooklyn; Tufts College Medical School, Boston, 1913; member of the American Urological Association; served in the M. C., U. S. Army, during the World War; on the staffs of the Long Island College Hospital and the Kings County Hospital, where he died, August 12, of appendicitis, aged 35.

Seth Wilson Dodge, Fairbury, Neb.; State University of Iowa College of Medicine, Iowa City, 1882; member of the Nebraska State Medical Association; formerly mayor of Fairbury and for more than twenty years county coroner; aged 76; died, August 2, following a long illness.

Cecil Warren Le Grand, Hempstead, Texas; University of Alabama School of Medicine, Tuscaloosa, 1873; Jefferson Medical College of Philadelphia, 1877; member of the State Medical Association of Texas; aged 74; died, August 8, following a long illness.

Frederick Jorgen Nordby, Fort Bayard, N. M.; University of Colorado School of Medicine, Denver, 1913; member of the New Mexico Medical Society; on the staff of the U. S. Veterans' Hospital, No. 55; aged 36; died suddenly, August 14, of heart disease.

Leo A. O'Brien, Skiatook, Okla.; University Medical College of Kansas City, Mo., 1903; member of the Oklahoma State Medical Association; also a druggist; aged 44; died, August 4, at the Christian Church Hospital, Kansas City, Mo.

John Philip Reilly ⊕ Elizabeth, N. J.; Bellevue Hospital Medical College, New York, 1888; president of board of education and president of the medical staff of St. Elizabeth Hospital, where he died, August 14, of pernicious anemia.

George Marion French, Springfield, Ill.; College of Physicians and Surgeons, Chicago, 1901; medical director of the Springfield Life Insurance Company; aged 45; died, August 12, at St. Luke's Hospital, Chicago, of peritonitis.

George Edmund Skiff, Warsaw, N. Y.; University of Buffalo Department of Medicine, 1920; member of the Medical Society of the State of New York; on the staff of the Warsaw Hospital, where he died, August 9, aged 31.

Paul R. Chambliss, Gray, Ga.; Hospital Medical College, Atlanta, 1911; member of the Medical Association of Georgia; aged 39; died, August 4, at a hospital in Hot Springs National Park, Ark.

George D. Bagnall, Stoneboro, Pa.; College of Physicians and Surgeons, Chicago, 1890; aged 59; died, August 7, at a hospital in Mercer, of complications, following an appendectomy.

George B. Nance, Monroe, N. C.; Jefferson Medical College of Philadelphia, 1885; member of the Medical Society of the State of North Carolina; aged 66; died, August 8, of heart disease.

Arlando Columbus Curl, Schell City, Mo.; Missouri Medical College, St. Louis, 1888; member of the Missouri State Medical Association; aged 73; died, August 7, of cerebral hemorrhage.

Arthur Galen Stevens, South Webster, Ohio; Starling Medical College, Columbus, 1904; member of the Ohio State Medical Association; aged 45; died, August 6, of cerebral hemorrhage.

John Albert Noble, San Francisco; University of California Medical School, San Francisco, 1888; aged 56; died, August 8, at St. Luke's Hospital, of arteriosclerosis and nephritis.

John Llewellyn Griffiths, Taylor, Pa.; University of Vermont College of Medicine, Burlington, 1884; member of the Medical Society of the State of Pennsylvania; aged 79; died, July 30.

Paul Richmond, Washington, D. C.; Georgetown University School of Medicine, Washington, 1892; aged 75; died, August 8, at Idylwood, Va., of chronic myocarditis and aortitis.

William Patrick Ahearn ⊕ Grantwood, N. J.; Fordham University School of Medicine, New York, 1913; aged 41; died, July 28, of injuries received in an automobile accident.

Warrick P. Kyle, Columbus, Ohio; Hospital College of Medicine, Medical Department Central University of Kentucky, Louisville, 1881; aged 70; died suddenly, July 29.

William T. Bolding, Hamilton, Texas; Kentucky School of Medicine, Louisville, 1901; member of the State Medical Association of Texas; aged 49; died, August 5.

Edgar O'Brien Freligh ⊕ Stillwater, Minn.; University of Bishop College Faculty of Medicine, Montreal, Que., Canada, 1886; aged 68; died, May 31, of angina pectoris.

Francesco A. Caruso, Newark, N. J.; University of Naples, Italy, 1902; on the staff of St. Gerard's Newark Italian Hospital; aged 47; died, August 7, of heart disease.

William Henry White, Whiton, Md.; University of Maryland School of Medicine, Baltimore, 1887; aged 62; died, July 18, at Salisbury, following a long illness.

Rufus James Hyde, Saugerties, N. Y.; University of Michigan Homeopathic Medical School, Ann Arbor, 1884; aged 66; died, July 31, following a long illness.

Thomas Sheldon Hicks, Wolcott, N. Y.; New York Homeopathic Medical College and Hospital, 1902; aged 45; was killed, August 4, in an automobile accident.

Robert Early Howard ⊕ Durant, Miss.; Kentucky School of Medicine, Louisville, 1876; formerly county health officer; aged 68; died, August 7, of pneumonia.

William Freeman, Fullerton, Calif.; Indiana Medical College, Indianapolis, 1877; member of the California Medical Association; aged 84; died, June 29.

James Franklin Preston, Effingham, Kan.; University of Louisville (Ky.) School of Medicine, 1892; aged 77; died, July 12, following a long illness.

John L. Dismukes, Mayfield, Ky.; Kentucky School of Medicine, Louisville, 1894; county health officer; aged 50; died, August 3, of tuberculosis.

Walter Roland Elliott ⊕ West Collingswood, N. J.; College of Physicians and Surgeons, Baltimore, 1903; aged 55; died, August 8, of angina pectoris.

George W. Bell, Pine Bluff, Ark. (licensed, Arkansas, 1903); member of the state legislature; aged 61; died, August 3, at New York.

Lutrelle Henderson ⊕ Marysville, Ohio; Starling Medical College, Columbus, 1886; aged 66; died, August 5, of diabetes mellitus and gangrene.

V. Norris, Childress, Texas; Medical Department of the Tulane University of Louisiana, New Orleans, 1892; aged 57; died, August 6.

Frederick Craft Hetzel ⊕ Staten Island, N. Y.; Long Island College Hospital, Brooklyn, 1919; aged 33; died, August 7, of appendicitis.

Daniel Patterson Blose, McKeesport, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1900; aged 47; died, August 2.

Albert L. Brown, Sandy, Utah; Wisconsin Eclectic Medical School, Milwaukee, 1896; aged 82; died, August 4, of cardiorenal disease.

Smith Graves Beatty ⊕ Kane, Pa.; College of Physicians and Surgeons, Baltimore, 1882; aged 71; died, May 29, of heart disease.

Moses Newkirk, Mercedes, Argentine, South America; University of Michigan Medical School, Ann Arbor, 1877; died, August 4.

James C. Dunbar, Vanetta, W. Va. (licensed, West Virginia, 1896); aged 60; died, August 3, of carcinoma of the stomach.

Wallace C. Stratton, Oakland, Calif.; Boston University School of Medicine, 1878; aged 70; died, April 17, of influenza.

George H. Treadgold ⊕ Port Huron, Mich.; Detroit College of Medicine and Surgery, 1886; aged 62; died, August 8.

William Hall, Cambridge, Mass.; L.R.C.P., Edinburgh, Scotland, 1885; aged 67; died, August 5, of sciatica.

James R. Brown, Malta Bend, Mo.; Missouri Medical College, St. Louis, 1878; aged 69; died, August 2.

Frank R. Carvell, Cleveland; Cleveland Homeopathic Medical College, 1902; aged 67; died, August 5.

George B. Stemen, Fort Wayne, Ind.; Fort Wayne College of Medicine, 1882; aged 66; died, August 7.

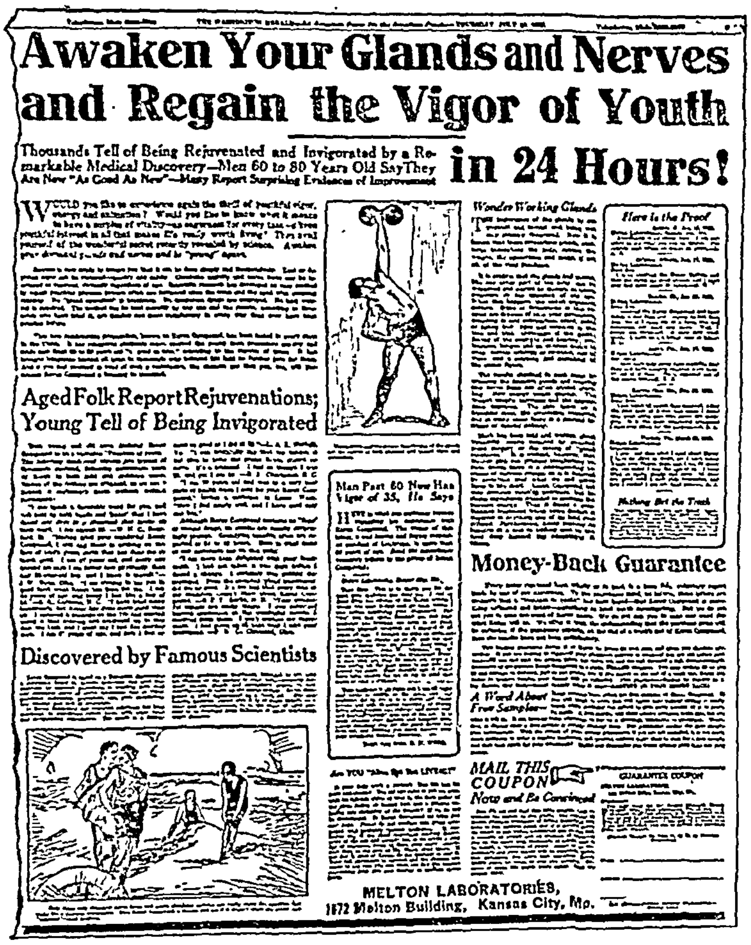
The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

ANOTHER MAIL-ORDER REJUVENATING CONCERN DECLARED A FRAUD

The Melton Laboratories and Associated Fakes of H. M. Stunz Debarred from the United States Mail

For two or three years past a mail-order concern calling itself the "Melton Laboratories, Manufacturing Chemists," has been defrauding the public from Kansas City, Mo., in the sale of an alleged sex rejuvenator. The "Melton Laboratories" were not laboratories, and the "Manufacturing Chemists" were neither chemists nor manufacturers. The thing was a crude, mail-order swindle operated mainly by Harold Melton Stunz. It seems to have been a family affair, for C. Stunz (father of Harold Melton), W. D. and Ray M. Stunz (brothers of Harold Melton) and Bessie Stunz (wife of Harold Melton) were, according to the federal investigators, owners of this fakery.



Awaken Your Glands and Nerves and Regain the Vigor of Youth in 24 Hours!

Thousands Tell of Being Rejuvenated and Invigorated by a Remarkable Medical Discovery—Men 60 to 80 Years Old Say They Are Now "As Good As New"—Many Report Surprising Evidences of Improvement

Aged Folk Report Rejuvenations; Young Tell of Being Invigorated

Discovered by Famous Scientists

Wonder Working Glands

Here is the Proof

Man Past 60 Now Has Vigor of 35, He Says

Nothing But the Truth

Money-Back Guarantee

A Word About Free Samples—

MAIL THIS COUPON Now and Be Convinced

GUARANTEE COUPON

MELTON LABORATORIES,
1872 Melton Building, Kansas City, Mo.

Greatly reduced reproduction of a typical full-page advertisement in a daily paper (in this case the Washington *Herald)* of the Melton Laboratories fraud.

The concern did a gross business last year of $400,000. It employed no physicians or chemists. The advertising for last year cost over $200,000, which was distributed among forty-five daily papers—the greatest beneficiaries of medical swindles and the means whereby such frauds are able to fleece the public. A few of these advertisements have been collected by the Bureau of Investigation, and by referring to the files we find that the Washington *Herald,* an "American Paper for the American People," carried at least one full page. The Boston *American,* "A Paper for People Who Think," got another full page. The Buffalo *Inquirer,* "The People's Paper," also got a full page. The Chicago *Herald-Examiner,* whose slogan is "Truth—Justice—Public Service," carried a full page. The Memphis *Commercial Appeal* got an entire page. And, of course, there were many, many others. Further, as has been brought out before in discussions of medical frauds that have been financial successes, the concern apparently had no difficulty in getting a testimonial of the high commercial standing of the Melton Laboratories (which were not laboratories) from a local bank.

The nostrum put out by the Melton Laboratories (Stunz) was called "Korex." The full formula will be given in what follows. Later Stunz had two additional drugs added to Korex and put it out under the name "Hiobin," and created a "paper" organization called "The Hiobin Company" for its exploitation.

Then in order not to overlook any possible victims, Stunz brought out a "kidney cure" that he called "Renex." This was sold by the Renex Company, another "paper" concern. All three of these nostrums came from the same address, but the public had no means of knowing it as the addresses were camouflaged so as to cover this fact. Korex came from the Melton Building; Hiobin came from the Hoffman Building; Renex came from 322 E. 13th Street. The addresses were all the same—three fraud factories in one.

On August 13, 1925, the Melton Laboratories, H. M. Stunz, manager, the Hiobin Company and the Renex Company had a fraud order issued against them, debarring them from the use of the mails. The story of this fraud is well brought out in the Memorandum prepared by Judge Edgar M. Blessing, Solicitor of the Post Office Department, for the Postmaster General, in which the Solicitor recommended the issuance of the fraud order. The mails were closed to the concern August 13, 1925.

It appears that Stunz and his variously named concerns were called on by the federal authorities to show cause on July 16, 1925, why a fraud order should not be issued against them. Stunz appeared at Washington on the date set accompanied by W. M. Ketcham of Chicago and F. W. Cox of Baltimore, his attorneys. One W. M. Ketcham defended Branaman in the deafness cure quackery that the government put out of business some years ago and also defended those two choice quacks, F. W. Willard and Oren Oneal, who defrauded the public out of $75,000 a year by means of a fraudulent cure for pyorrhea. In The Journal's article on the Willard fraud it was brought out that W. M. Ketcham was operating a business under the somewhat imposing name "Federal Advisory Association," and that Ketcham had previously been a Post Office Inspector for some years but in 1910 went into business for himself. The apparent function of the "Federal Advisory Association," according to The Journal's previous article, was to furnish information to those willing to pay for it on how to use the United States mails without technically violating the law. It also appears to essay to offer suggestions on the wording of "patent medicine" labels. The June, 1925, issue of the Chicago telephone directory gives the Federal Advisory Association and W. M. Ketcham at the same address and with the same telephone number.

To quote from Judge Blessing's memorandum:

"Harold M. Stunz operates through the mails the 'Melton Laboratories,' the 'Renex Company' and the 'Hiobin Company' from the same offices in the Hoffman Building, at 1322 Oak Street, Kansas City, Missouri. The oldest concern is the Melton Laboratories, under which name a medicine called 'Korex Compound' is sold for the treatment and cure of lost manhood and allied ailments. Soon after engaging in this business, Mr. Stunz claims that he received many calls for a so-called kidney remedy, and he therefore requested a certain manufacturing drug company to recommend a pill for that purpose, which the concern did, and he then purchased these pills in wholesale quantities, re-packed, re-labeled and retailed them through the mails under the name 'Renex,' advertising them, as will be shown later, as a scientific discovery possessing great value.

"The evidence shows that the advertising matter of the Melton Laboratories became so objectionable to one of the proprietors of the advertising agency handling it that it was arranged to sell 'Korex Compound' in drug stores, and to take its place in the mails, a new medicine called 'Hiobin' was 'discovered' for the treatment of lost manhood. The ingredients in 'Hiobin,' I find from the evidence, are identical with those in Korex Compound, except for the addition of a small quantity of iron peptonate and phenolphthalein, which, I find, add little or no value to the preparation as a treatment for the diseases and ailments set forth in the literature. According to the evidence, persons on the mailing list of the Melton Laboratories are being circularized in an effort to sell the 'new discovery' when they can no longer be induced to use 'Korex.'"

The memorandum then gives the names of the various members of the Stunz family that were interested in these frauds, and brings out the fact that the concern had no laboratory, that it manufactured no medicine and that the three preparations were "purchased from wholesale manufacturing drug houses in New York City and in Cincinnati, Ohio." Judge Blessing then continues:

"According to the evidence, the several medicines contain the following ingredients:

"*Korex:* Yeast Vitamines	1 gr. to tablet
Ext. Nux Vomica	1/8 gr. to tablet
Yohimbin Hydrochlorid	1/24 gr. to tablet
Lecithin	1/16 gr. to tablet
"*Hiobin:* Same ingredients as Korex, *with addition of*	
Iron peptonate	1 gr. to each tablet
Phenolphthalein	1/16 gr. to each tablet
Renex:	
Ext. Uva Ursi	1/2 gr.
Podophyllin	1/8 gr.
Apocynin	1/8 gr.
Leptandria	1/4 gr.
Mass Copaiba	1 gr.
Potassium Nitrate	1 gr.
Oil Juniper	q. s.

"The literature of the Melton Laboratories is replete with extravagant and unwarranted statements regarding both the history and therapeutic value of 'Korex Compound' . . ."

A typical advertisement of the Melton Laboratories is then quoted in the memorandum, and the Solicitor brings out that Stunz, when interviewed by one of the Post Office Inspectors, admitted that the only basis he had for the claims made in his literature was "obtained from certain medical books, literature supplied by drug houses, and testimonials." Stunz admitted further that he did not know what "lost manhood" is, did not know how to cure it, and did not believe there was a cure for it. He also admitted that he know nothing about drug therapy, and did not know what effect his medicine might have in any particular case.

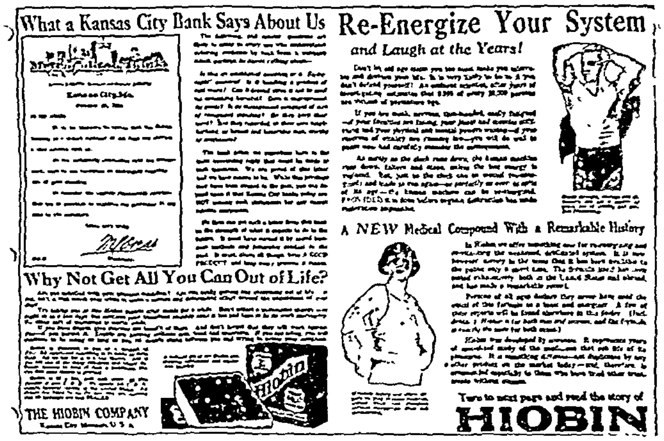
The government in its case against these quacks called on Dr. L. F. Kebler, who is in charge of Special Collaborative Investigations, Bureau of Chemistry, Department of Agriculture, and whose qualifications as an expert were conceded by Stunz's own attorneys. Dr. Kebler brought out in his testimony that all of the drugs in the Korex formula were well known and that the product represented nothing new, novel or wonderful, nor did it require years of scientific research to perfect it. He brought out further the fact that the Korex mixture far from being harmless was in fact distinctly poisonous. Dr. Kebler declared that the essential action of Korex was that of a stimulant due to the nux vomica it contained. He stated, also, that in order to obtain the views of reputable physicians who specialize in the treatment of ailments of the male organs, a questionnaire was addressed to nearly 500 physicians who are either members of the American Urological Society or have specialized in the action of drugs. One of the questions was: "Do you know of any drug or mixture of drugs that will remedy or cure impotence or lost manhood?" Of couse, not a single reply came in the affirmative.

Similar testimony was produced to show the worthlessness of Hiobin (the modified Korex) and Renex. It was also brought out that in one of the form letters sent out by the Hiobin Company there was a postscript declaring that the Hiobin Company had "no connection with any other concern selling a tonic or invigorating treatment." The facts were, of course, that the Hiobin Company was merely another trade name used by Stunz in his fraudulent business.

All letters of inquiry and all money sent in to either the Hiobin Co., the Renex Co. or the Melton Laboratories were handled in the same offices by the same people. The memorandum continues:

"Regarding the product 'Renex,' which Stunz, under the name of Renex Company, represents will cure persons of kidney, bladder and prostatic trouble by getting at the 'cause' thereof, and that the medicine was so efficient that his company was 'asked to make it available to the public,' I find from the evidence that 'Renex' will not get at the causes of the several diseases and ailments referred to in the concern's literature; that it will not bring about any real restoration in the case of kidney ailments but does have a tendency to render the urine antiseptic in certain cases. Aside from this it is of no value.

"The medical testimony shows that 'Renex' will not bring about relief, or cure any cases of prostatic trouble, as claimed in the Renex literature. It is also claimed by the Renex Company that it has 'unlimited facilities for research' at its disposal. As has already been stated, the proprietors of 'Renex,' 'Hiobin' and 'Korex' have no 'laboratories,' nor have they the 'facilities' as indicated. 'Renex' is not a recent discovery, as persons are led to believe by the literature, but the product is composed of old and well known drugs. The pills were sold by the drug manufacturing company long before their exploitation under the name 'Renex' was begun by Mr. Stunz. 'Renex' is also held out in the literature as efficacious in the prevention and treatment of Bright's Disease. The evidence shows that it will neither prevent nor cure Bright's disease."


What a Kansas City Bank Says About Us
Re-Energize Your System
and Laugh at the Years!
Why Not Get All You Can Out of Life?
A NEW Medical Compound With a Remarkable History
THE HIOBIN COMPANY
Turn to next page and read the story of
HIOBIN

Greatly reduced reproduction of part of one of the "Hiobin" advertising circulars. Note the testimonial from a local bank certifying that the management of the company were "thoroughly reliable men of good standing."

In closing, the Solicitor's memorandum says:

"At the close of the hearing, Mr. Stunz, personally, and through his attorneys, requested that no fraud order be issued against his several companies, if possible, and particularly not against his personal name. He alleged he was connected with other organizations and enterprises that enjoy a good reputation in the community and that he would be seriously embarrassed and hindered in work not at all associated with the several enterprises under consideration. He furnished letters of endorsement from prominent persons as to his personal reputation and standing in his community and stated that he was willing to execute an affidavit to the effect that he had absolutely discontinued and abandoned the several mail order enterprises now being considered by this office. In view of these circumstances, I have to recommend that the personal name of H. M. Stunz be not included in the fraud order."

Judge Edgar M. Blessing summed up his memorandum by the declaration that the evidence showed, and he had so found, that this was a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises and that he therefore recommended that a fraud order be issued against the "Melton Laboratories," "H. M Stunz, manager," the "Hiobin Company" and the "Renex Company." Unfortunately the fraud order was not extended to cover the personal mail of H. M. Stunz.

Correspondence

THE FIFTH INTERNATIONAL CONGRESS ON THE HISTORY OF MEDICINE

To the Editor:—The fifth congress to be held on the history of medicine since the foundation of the society in 1920 took place at the Athénée in Geneva, July 20 to 25, under the presidency of Dr. Charles Greene Cumston, formerly of Boston, and now instructor in medical history in the University of Geneva. Eleven nations were represented (Belgium, Denmark, France, Great Britain, Holland, Italy, Morocco, Poland, Spain, Switzerland and the United States) and although the number of those registered was not as great as at the previous congress (influenced largely by the unfavorable rate of exchange), the percentage attending the various séances was considerably higher. Five national sections (Egypt, Greece, Portugal, Roumania and Sweden) were not represented. Each session was presided over by the representative of one of the countries participating.

In opening the congress Monday afternoon, Dr. Cumston gave an interesting talk on several men prominent in the medical history of Geneva. He pointed out that Daniel Leclerc, by the publication of his Histoire de la médecine in 1696—antedating Freind by twenty-nine years—was justly entitled to be considered the father of the history of medicine. Sarasin, Bonetus, Tronchin, Rilliet and others were mentioned. Dr. André Patry, president of the Geneva Medical Society, described the prominent rôle that Swiss ophthalmologists had played in the development of their specialty. Other welcoming addresses were made by M. André Oltramare, chief of the department of public instruction, representing the Conseil d'état of Switzerland and of the canton of Geneva; by M. Georges Werner, rector of the University of Geneva, and by Dr. Hugues Oltramare, representing the city of Geneva. After an excellent apologia for the study of the history of medicine by Tricot Royer, the president of the international association, E. Pittard gave an interesting illustrated talk on prehistoric medicine and surgery. There were about eighty persons present.

In Tuesday's program the communications in English seemed above the average, because more carefully prepared and kept within the allotted time of fifteen minutes without an enforced and hurried distortion of the latter part of the paper. De Peyer's communication possessed an added interest in that it dealt with his own ancestor, the discoverer of the lymph patches in the small intestine that bear his name. De Lint's unpublished letter of Tronchin's was important in throwing a new and more pleasant light on the character of that well known Genevese physician.

At the Wednesday sessions the outstanding contributions were: a scholarly presentation by Professor Jeanselme of Paris on the Germanic conceptions of surgical anatomy at the time of the barbarian invasions, as shown by their laws governing compensations for injury; a philosophic discussion of Paracelsus' medical views by R. O. Moore; Mrs. Lindsay's description of the growth of dentistry in England, and Wickersheimer's minute description of Maitre Gispadeu of Annecy.

At the last scientific session, Friday morning, Professor Wrzosek described how Laënnec's discovery of auscultation made more rapid headway in Poland than in other nations, and J. W. Courtney of Boston described Waterhouse's efforts to introduce Jenner's vaccination into America. De Alcalde of Madrid described the iron crowns of St. John of Jerusalem, which were used in the middle ages to cure headaches, meningitis and other conditions, and demonstrated a fine specimen that he had found in a Spanish convent. Dr. J. B. Hurry's communication on I-Em-Hetep, "He who procures peace," was read by C. J. S. Thompson. Many details of King Zoser's prime minister, who later became the medical god of Egypt, were shown to be well known through sacred writings and such statues as can be found in the Wellcome and the British Museums and his tomb and temple at Memphis. Altogether, they form a strong argument in favor of his being considered the Father of Medicine.

No description of the congress can omit the pleasant social features, which, as in the past, have formed an important and delightful part of these meetings. Monday evening, those who attended were entertained by the president at a concert and champagne supper which lasted until after midnight. After the Tuesday meeting, Dr. and Mme. Rilliet gave a garden party at their beautiful property of Vengeron, with its unsurpassed view of Mont Blanc, and showed interesting souvenirs of their grandfather, the celebrated describer of typhoid in children. That evening the beautiful annual lake illumination with fireworks was given. Wednesday, the medical treasures of the university library were exhibited, and in the evening a reception was given by the city of Geneva at the Palais Eynard. Thursday was devoted to a tour of the lake of Geneva on a special boat, giving a splendid opportunity to see this beautiful body of water in its varied aspects of sunshine and storm. Lunch at the castle of Chillon, with a tour of inspection, was followed by a banquet at the new Hotel Royal at Evian, with inspection of the Source Cachat, and Geneva was reached by 8 p. m. The congress banquet, Friday evening, terminated a delightful meeting.

The next congress will be held at Leyden in July, 1927, under the presidency of Dr. J. G. de Lint. There is every reason to hope that by that time all the important countries of Europe will have become members. In view of the considerable and increasing interest that is being taken in medical history in this country, it is regrettable that there were only four Americans attending this congress. Let us hope that a more commensurate number will be found at Leyden.

E. B. Krumbhaar, M.D., Philadelphia.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TRIPLETS

To the Editor:—One of the newspapers recently published what purported to be the copy of a photograph of a set of triplets, girls of perhaps 18 or 20, who were so much alike that even their own mother could not differentiate. I also have it on medical authority, not open to question, that in one case of triplets all of the same sex there was one placenta, one chorion and two amnions, whereas in another set of varying sex there were three placentas. The inference from these data is that triplets, like twins, may all come from a single ovum, when they will be similar, or from separate ova, when they will not. But this doesn't seem to be quite enough evidence, and I am wondering whether you can give me any references, or let me know what is the general opinion.

Howard Crawley, Philadelphia.

Answer.—The question has arisen whether there may occur cases of monozygotic (one-egg) triplets in human beings. Though such cases are rare, there is little question as to their authenticity. Moreover, there is no especial difficulty in accounting for the condition. In the nine-banded armadillo four fetuses from a single egg occur with great regularity, although occasionally only three fetuses or five fetuses may result. As it is now almost certain that twinning in man and in the armadillo are similar in cause and in mode, it is not too much to assume that triplets in man may arise from the second division of a twin primordium. Possibly both twins have undergone a second fission, but only three of the original four have survived.

Before attempting to decide as to the monozygotic origin of any set of triplets or quadruplets in man, one should make an accurate comparison of palm and sole prints, and should look for evidence of mirror-image symmetry among them. A superficial resemblance is not a safe criterion of monozygotic origin even in twins, for brothers or sisters who are not twins sometimes show extraordinary resemblance.

INSULIN

To the Editor:—Does the administration of insulin produce any substance that may show in the urinary sediment on microscopic examination?

C. J. MARCH, M.D., Fordyce, Ark.

ANSWER.—Insulin is administered, as a rule, only to patients who have a shortage of insulin to begin with. When it is given in diabetes it is for the purpose of supplying a lack. All normal persons receive insulin every day from endogenous sources in large amounts. If insulin caused the appearance of a characteristic sediment in the urine, this sediment should be found in every normal urine and would be one of the normal urinary constituents. We are not aware that it does this unless, indeed, some product of glucose oxidation, such perhaps as oxalic acid, which appears in urine in the form of the familiar envelops of calcium oxalate, could be so regarded, because insulin plays an indispensable part in glucose oxidation. On the other hand, in the course of treating diabetic patients by combined insulin and dietetic therapy, profound changes in the metabolism are often produced, and coincidentally with some of these the character of the urinary sediment may be changed. Such changes are incidental to and not distinctive of insulin administration. It is also conceivable that certain preparations of insulin might contain impurities that would cause unusual sediments to appear in the urine, but we know of none such at this writing.

PREVALENCE OF GOITER

To the Editor:—In what areas of the United States is goiter most prevalent?

H. T. MCGUIGAN, M.D., Red Wing, Minn.

ANSWER.—McClendon (THE JOURNAL, May 24, 1924, p. 1668) has drawn maps of the goitrous area which, generally speaking, comprises the northern half of the United States less the New England states, part of New York and a strip along the Atlantic seaboard. It is interesting to note, in this connection, that the map showing the area in which iodin is deficient in the drinking water corresponds closely to the map of the goitrous area. These maps were made from data compiled by the Draft Board.

As an example of the amount of goiter in parts of this area, Olin (THE JOURNAL, April 26, 1924, p. 1338) found in four counties in Michigan that 47.2 per cent. of 31,612 persons examined had goiter. A more extensive survey was made in Utah recently, where 69,256 school children were examined, of whom 42.7 per cent. were positive; 81 per cent. of them had slight enlargements, 2 per cent. moderate, 1 per cent. great, and 16 per cent. were in the pregoitrous stage. Other surveys have been made in Cincinnati and in the state of Montana, where 48,000 and 14,000 school children, respectively, were examined, and the findings gave further evidence that these localities were in the area of endemic goiter.

PREGNANCY AND HYDATIDIFORM MOLE

To the Editor:—Can you give me any idea of the likelihood of a normal pregnancy in a young woman who has had two hydatid moles—one at six months, two years ago, and one at two and a half months, a few weeks ago? These are the only pregnancies she has had. She and her husband are anxious to have a child, but are now discouraged. I have read that this condition seldom occurs twice in the same woman, but this woman seems to be the exception. There is nothing in the family or personal history that has any bearing on the matter.

S. P. CARLUCCI, M.D., Endicott, N. Y.

ANSWER.—Cases are known of women who have delivered healthy children after previous hydatidiform moles, and the family may be encouraged in the hope that subsequent pregnancies would be normal.

There is, however, a certain risk which cannot be denied. The risk is, first, of a recurrence of the mole; and, secondly, of the development of malignancy after the molar pregnancy. Statistics on the former point are hard to get. Dr. Robert B. Kennedy of Detroit has collected the records of 300 moles and found four recurrences, one of three times. One case, on record, shows a recurrence of the mole in eleven pregnances. Such accidents are exceedingly rare. Statistics on the second point, that is, what percentage of moles develop malignancy, are unsatisfactory. Essen-Moeller followed up fifty cases and found 16 per cent. developed malignancy, but this was mainly in women beyond 45 years of age. In Dr. Kennedy's 300 cases, 10 per cent. developed chorio-epithelioma. If all moles were reported, the percentage would probably not be so high.

Since we do not know what is the cause of this complication of pregnancy, only a qualified promise of cure can be offered.

SUPERFLUOUS HAIR

To the Editor:—Is there any treatment for superfluous hair on the face except the electrical needle? My daughter, aged 24, has hair below the chin and below the line of the inferior maxilla. She was treated for eighteen months with the needle, but the success was poor and now she has resorted to shaving. Please give me any information you have.

M. D., Virginia.

ANSWER.—There is no way of safely removing superfluous hairs except with the electric needle. The procedure with roentgen rays is not safe. There is no objection to getting rid of the unsightly hairs, either by pulling them out or by rubbing them down with fine pumice. The hairs can be pulled out individually with a pair of epilating forceps or tweezers, or they can be pulled out with one of the epilating waxes that are for sale in the drug stores. To get rid of them by pumice, a brick of fine toilet pumice stone should be obtained; the hair is then trimmed off short, or, better, shaved, and its regrowth is prevented by the regular use of this fine pumice. It is used by rubbing the surface with it until the hairs are rubbed away; after this is once done it is easy to keep the hairs down. With a little practice the patient can learn to do this and keep all trace of hair away without irritating the skin. Of course, either pulling the hairs or rubbing them off with pumice is a procedure that has to be continued. There is no reason to believe that it makes the hairs coarser.

BLOOD LACTIC ACID

To the Editor:—How may I determine quantitatively the blood lactic acid? Has anything on the subject appeared in the literature?

P. M. SUSKI, M.D., Los Angeles.

ANSWER.—Clausen elaborated a method for the determination of lactic acid in the blood which was published in the *Journal of Biological Chemistry* (**52**:263 [May] 1922). He found a provisional normal figure of from 15 to 32 mg. per hundred cubic centimeters. There is a bibliography in connection with this article which gives other methods for the determination of lactic acid, none of which, however, seem to apply to the blood. Among several new books on blood chemistry and laboratory diagnosis, no quantitative method was found for estimating lactic acid. It seems that the test is not generally made and as yet its clinical value has not been recognized.

MENSTRUATION AFTER CONCEPTION

To the Editor:—Can a pregnant woman menstruate during the first months of pregnancy? While I consider this impossible, one of my patients assures me that in her first pregnancy she menstruated regularly until the sixth month. Can you furnish some references?

ROBERTO DEL VALLE, M.D., LaPaz, Baja Calif., Mexico.

ANSWER.—Since the two deciduae do not fuse throughout until the fifth month, it is possible for menstruation to occur after conception has taken place. A woman may have one or even several menstrual periods after pregnancy has begun, especially if conception has occurred just before a menstrual period. If such a period does occur, however, it is usually an abortive one and is scanty or abnormal in some way. Menstruation in pregnancy is likewise possible in those rare cases of double uterus in which one side harbors the ovum and the other menstruates all through pregnancy.

EXCLUSION OF SOUND

To the Editor:—Referring to the inquiry on this subject, published August 15, the Bárány noise apparatus (lārmapparat) was invented by Prof. Robert Bárány of Upsala, Sweden, to shut out absolutely all hearing in the ear in which it is used. This it does very effectively. By using two of these little instruments, one in each ear, the subject is rendered "totally deaf" for the moment, and if asked to read from a book will raise his voice to a shout quite unconsciously—the so-called reading test for unilateral deafness. I think it is carried by most instrument houses. The one I have I brought over with me from Vienne several years ago.

I. W. VOORHEES, M.D., New York.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Alaska: Juneau, Sept. 1. Sec., Dr. Harry C. De Vighne, Juneau.

Arizona: Phoenix, Oct. 6-7. Sec., Dr. W. O. Sweek, 404 Heard Bldg., Phoenix.

Colorado: Denver, Oct. 6. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

District of Columbia: Washington, Oct. 13. Sec., Dr. Edgar P. Copeland, Stoneleigh Court, Washington.

Florida: Tallahassee, Oct. 13-14. Sec., Dr. W. M. Rowlett, Citizens Bank Building, Tampa.

Georgia: Atlanta, Oct. 13-15. Sec., Dr. C. T. Nolan, Marietta.

Hawaii: Honolulu, Oct. 12-15. Sec., Dr. Guy C. Milnor, 401 Beretania St., Honolulu.

Idaho: Boise, Oct. 6. Commissioner of Law Enforcement, Mr. F. A. Jeter, Boise.

Illinois: Chicago, Oct. 6-8. Director, Mr. A. M. Shelton, Capitol Bldg., Springfield.

Kansas: Topeka, Oct. 13. Sec., Dr. Albert S. Ross, Sabetha.

Michigan: Lansing, Oct. 13-15. Sec., Dr. Guy L. Connor, 707 Stroh Bldg., Detroit.

Minnesota: Minneapolis, Oct. 6-8. Sec., Dr. Thomas S. McDavitt, Lowry Bldg., St. Paul.

Montana: Helena, Oct. 6. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

National Board of Medical Examiners: Part III, Baltimore, Oct. 15. All applications for this examination must be made on or before Oct. 1. Sec., Dr. J. S. Rodman, 1600 Walnut St., Philadelphia.

New Hampshire: Concord, Sept. 10-11. Sec., Dr. Charles Duncan, Concord.

New Mexico: Santa Fe, Oct. 12-13. Sec., Dr. W. T. Joyner, Roswell.

New York: Albany, Buffalo, New York City and Syracuse, Sept. 21-24. Chief, Education Dept., Mr. Herbert J. Hamilton, Albany.

Oklahoma: Oklahoma City, Sept. 8-9. Sec., Dr. James M. Byrum, Shawnee.

Porto Rico: San Juan, Sept. 1. Sec., Dr. Diego A. Biascoschea, 3 Allen St., San Juan.

Rhode Island: Providence, Oct. 1. Sec., Dr. Byron U. Richards, State House, Providence.

Utah: Salt Lake City, Oct. 6. Director of Regis., Mr. J. T. Hammond, 412 State Capitol Bldg., Salt Lake City.

Wyoming: Cheyenne, Oct. 5-7. Sec., Dr. G. M. Anderson, State Capitol, Cheyenne.

AMERICAN BOARD OF OTOLARYNGOLOGY

Dr. Hanau W. Loeb, secretary of the American Board of Otolaryngology, has sent in a report of the examination held at Philadelphia, May 26, 1925. Altogether 157 candidates were examined, and of these 137 passed and 20 failed. The results are given as follows:

PASSED	Number
University of Pennsylvania	14
Long Island College Hospital	6
Columbia University	4
Tulane University	2
Women's Medical College of Pennsylvania	1
St. Louis University	2
Hahnemann Medical College of Philadelphia	4
Hahnemann Medical College of Chicago	1
University of Indiana	3
Medical College of Virginia	3
University of Virginia	3
Johns Hopkins University	5
New York Homeopathic Medical College	2
Harvard University	4
Medico-Chirurgical College	6
Lincoln Memorial Hospital	1
University of Maryland	3
Detroit College of Medicine	1
Marion Sims College of Medicine	1
Jefferson Medical College	11
Northwestern University	1
University Medical College	2
Ohio State University	1
University of Nashville	1
Syracuse University	2
University and Bellevue Hospital Medical School	9
University of Michigan	2
University of California	1
Queens University	1
Bowdoin Medical College	2
Western Reserve University	1
University of Pittsburgh	1
Cornell University	1
University of Cincinnati	1
New York University Medical College	1
Fordham University	1
Memphis Hospital Medical College	1
College of Medicine and Surgery, Chicago	1
Rush Medical College	3
University of Buffalo	2
Vanderbilt University	1
Georgetown University	2
Albany Medical College	3
University of Texas	2
Tufts Medical College	4
University of Tennessee	2
University of Louisville	1
University of Western Ontario	1
College of Physicians and Surgeons, St. Louis	1
University of Vienna	1
University of Georgia	1
Boston University	1
Baltimore Medical College	1
Washington University	1
Barnes Medical College	1
Medical College of the State of South Carolina	1
University of West Virginia	1
Total	137

FAILED	Number
Tufts Medical College	2
University of Pennsylvania	2
Jefferson Medical College	2
University of Pittsburgh	2
Keokuk Medical College	1
Columbia University	1
Marquette University	1
Eclectic Medical College	1
University of Iowa	2
University of Nashville	1
University of Tennessee	1
University and Bellevue Hospital Medical School	2
Ohio State University	1
Rush Medical College	1
Total	20

Book Notices

When Life Loses Its Zest. By Abraham Myerson, M.D., Professor of Neurology, Tufts College Medical School. Mind and Health Series, Edited by H. Addington Bruce, A.M. Cloth. Price, $1.75 net. Pp. 218. Boston: Little, Brown & Co., 1925.

The key word of Dr. Myerson is "anhedonia," a complex condition with three factors: (1) loss or diminution of energy feeling; (2) loss or diminution of desire and satisfaction, and (3) restlessness of body and mind; in other words, what the man on the street would call a lack of "pep." Dr. Myerson discusses the relative importance of various factors in the development of this complex, which, by the way, is also called neurasthenia, psychasthenia and other asthenias. He blames it for all sorts of excesses, including drug addiction and sexual perversion. He considers it responsible for big game hunting, the fear of crowds and what not. The book is interesting, but somehow gives one the impression that everything has been sacrificed to the building up of the author's case. The term "anhedonia" seems to be utilized as a sort of general catch-basin for the inclusion of every mental abnormality so that the author may outline a system of physical and mental hygiene surrounding it. His system for the prevention and cure of anhedonia naturally involves the application of opposite principles of living. It calls for relaxations so that renewed energy may be obtained, for gratification so that hunger may be appeased, and abstinence so that hunger may reoccur. "Oliver Wendell Holmes pointed out long ago," says Dr. Myerson, "that life can be compared to the heart beat"—a series of alternating contractions and relaxations. His hope for humanity is a life of this type rather than one that will consist wholly of contractions or wholly of relaxations.

Lexikon der Ernährungskunde. Herausgegeben von Dr. E. Mayerhofer, Professor an der Universität Agram, und Dr. C. Pirquet, Professor an der Universität Wien. Paper. Lieferung 1. Price, 2.10 goldmarks. Pp. 144. Lieferung 2. Price, 7 goldmarks. Pp. 145-336. Vienna: Julius Springer, 1925.

This encyclopedic work was started by the Rikola press in Vienna, but for some reason has been taken over by Julius Springer. The number of parts to be issued is not stated, but the articles are arranged alphabetically and the first part starts with Aal and ends with Butterschmalz, while the second goes from Caju to Geflügel, so it is evidently to be in eight parts. It is financed by Mr. and Mrs. Auguste Richard of New York and Mrs. Augustus Hemenway of Boston. In addition to the editors there is a staff of twenty-one contributors. The work is simply a reference handbook of nutrition, dietetics and foodstuffs, with some biographic and historical material. It contains a vast amount of information on these subjects and is a tribute to Teutonic thoroughness; but, as is the case with such works, the articles are uneven and some are faulty. For example, in the nine line article on Bergius Benegt, a Swedish gastronomer, three lines and a half are devoted to the subject, telling that half of his book, title and date omitted, is devoted to cane sugar. The remainder of the article concerns beet and cane sugar, and the information is irrelevant. The book is another example of the desire of many writers to start new systems of nomenclature. In it foods are given numbers, a so-called Ziffernsystem or Systemzahl. All foods are divided into nine classes and each is known by a numeral; then comes a decimal, and further, apparently arbitrary, numerals are added to indicate the particular article. Mother's milk is 1.0, milk ale is 6.7383. In addition to this, the foods are designated by a Pirquet formula; for example, the formula for anchovies is 6 (T-A) + 7.5 F. No explanation of the formulas is given in the introduction, but probably will appear later. Sometimes the composition of foods is given and sometimes not. The vitamin content is sometimes noted by adding a vowel; thus, *a* means that a food has a normal vitamin content, whatever that may mean, *e* means a high content, and *i* a very high content, *o* a lessening and *u* an absence of vitamins. No account is taken of the various vitamins. Occasionally the food values are given in calories, but usually the new system is followed. This has never been used much in America and probably not much anywhere except directly under Pirquet's influence. The book will not make much of an appeal to English speaking peoples.

Pediatrics of the Past. An anthology compiled and edited by John Ruhräh, M.D., Professor of Diseases of Children, University of Maryland. With a Foreword by Fielding H. Garrison, M.D. Cloth. Price, $10. Pp. 592, with 72 illustrations. New York: Paul B. Hoeber, Inc., 1925.

This volume is in the nature of an anthology of contributions to pediatric literature by writers of the past, beginning with Hippocrates in the fifth century B. C., and proceeding to the middle of the nineteenth century. To it Dr. Fielding H. Garrison has contributed a foreword in his usual scholarly style. Dr. Ruhräh, in his own introduction to the book, makes the reader partake of his esthetic interest, and by quaint turns of thought gives one a foretaste of the feast of humor and interest that is to follow. Indeed, the gastronomic metaphor is warranted by the final sentence of the introduction, in which Dr. Ruhräh says, "Just enough of each author considered is given to whet the appetite and prepare the palate for the pièce de résistance which follows. This, then, is a sort of literary hors d'œuvres which may be tasted or passed by as suits the fancy of the reader." Each of the authors cited in the text is introduced by a brief historical statement with particular reference to his pediatric interests. A special chapter is devoted to pediatric poems. The book concludes with two collections of pediatric bibliographies that constitute an adequate reference for those who are interested in historical research in this field. The volume is illustrated with some fifty excellent line drawings and reproductions of ancient works. The publisher has added greatly to the merit of the work by the selection of an artistic font of type. The book is also printed on excellent stock with unusually fine typography. Here is a volume that has a particular appeal, not only for the pediatrician and medical historian, but also for all physicians who respect the art as well as the practice of medicine.

Studien über Ichthyosis congenita s. foetalis. Von Ake Ingman. Paper. Pp. 261, with 9 illustrations. Stockholm: P. A. Norstedt & Söner, 1924.

The author describes five cases of ichthyosis congenita in syphilitic infants. In the first two cases, *Spirochaeta pallida* was demonstrated in the umbilical cord. In the last three cases the parents were both syphilitic. In the second case described, there was a blood relationship between the parents. The author discusses in detail the possible influence of the syphilitic infection in these cases, and also the question of consanguineous marriage. Following a detailed description of his cases covering his histologic findings, he gives an excellent review of previously reported literature; this is followed by a general discussion of possible etiology and pathogenesis, diagnosis, prognosis and treatment.

Medicolegal

Where Medical Classification of Hernia Is Unimportant

(Klika v. Independent School Dist. No. 79 (Minn.), 202 N. W. R. 30)

The Supreme Court of Minnesota, in remanding for a rehearing this proceeding, under the workmen's compensation act, in which the industrial commission denied compensation for an inguinal hernia alleged to have been caused by a strain while the claimant was working on the defendant's grounds, holds that an inguinal hernia, the development of which is caused by overexertion or strain, is an "accidental injury" within the workmen's compensation act of that state, and is compensable. It is unimportant in the administration of the law whether from a medical or scientific standpoint hernia is classed as a disease or a malformation or is otherwise designated; nor is it important that the employee was predisposed thereto. The law concerns itself only with the legal cause. Where the evidence points forcefully to an unusual strain in the course of employment as the legal cause of the development of a hernia, and the asserted medical view that hernia is a progressive disease is so emphasized and so permeates the consideration of the case as to obscure the search for the legal cause, a rehearing should be granted.

Liability of Retailer Selling Unwholesome Meat

(Portage Markets Co. v. George (Ohio), 146 N. E. R. 283)

The Supreme Court of Ohio, in affirming a judgment for $5,000 damages in favor of plaintiff George, a boy, aged 12 years, who was alleged to have suffered a severe infection in the digestive organs and blood-making processes, which brought on him serious illness, from eating of a veal roast which the defendant company sold to his mother, says that the jury found that the roast was unwholesome at the time it was sold to the plaintiff's mother. The violation of the pure food laws of Ohio by the sale of unwholesome meat is negligence per se (by itself), and may be the basis for a recovery of damages by the user of such meat, who suffers injury proximately resulting therefrom, provided the user is not himself guilty of negligence in the care, preparation, cooking, or in any manner which contributes directly to his injury. In an action for damages against a retail meat vendor, growing out of the sale of unwholesome veal in violation of the pure food laws of Ohio, it is not error for the court to charge the jury:

> Whether or not the defendant intended to violate the law does not make any difference. Whether the defendant or its servant knew that the veal was unwholesome, if it was unwholesome at the time it was sold, makes no difference. Lack of intent to violate the law is no defense to the defendant. The defendant's ignorance of the condition of the veal at the time it was sold is no defense.

Testimony Required Concerning Roentgen-Ray Plates

(Joy v. Flax (N. J.), 127 Atl. R. 596)

The Supreme Court of New Jersey, in reversing a judgment for $3,500 damages rendered in favor of the plaintiff, whose skull was fractured in a collision of automobiles alleged to have been caused by the defendant's negligence, says that a physician whom the plaintiff called as a witness was shown some roentgen-ray plates and was asked what he found as to the condition of the plaintiff's skull. This question was objected to on the ground that the plates were not taken under the physician's supervision. The trial court permitted the question to be answered, and also admitted in evidence over objection the roentgen-ray plates without proof that they were plates of the skull of the plaintiff, depicting the injury to his skull. The court said that proof was not necessary, if the physician testified that they were plates used in the treatment and diagnosis of the injury. This ruling of the trial judge was wrong. The general principles governing the admission in evidence of roentgen-ray plates are the same as those which govern the admission in evidence of photographs. By the use of roentgen rays, a representation of things not discoverable or observable by the use of ordinary eyesight is obtained. Whether or not the roentgen-ray plate truly depicts what is not discernible to the eye depends, in a large measure, on the correctness of the process and instruments used in making the plates. To justify the admission of such plates in evidence there must be testimony of the trustworthiness of the process and instruments used to such an extent as to apprise the court that the method used to obtain the plates was one generally recognized as trustworthy. There must also be testimony that the plates depict the condition of the body or the part of the body of the person purporting to be the subject of the plates.

Rules as to Physicians Apply to Others—Charge

(Black v. Bearden (Ark.), 268 S. W. R. 27)

The Supreme Court of Arkansas, in reversing, on the appeal of defendant Black, a judgment that was rendered against him, says that the action was brought to recover damages for alleged malpractice and overcharge by the defendant as a dentist; but, there being no testimony on which to submit the question of overcharge to the jury, it was error to submit it. In the case of *Guild v. Whitlow*, 162 Ark. 108, the defendant contended that he was induced to pay a surgeon a specified amount for an operation on his representation that such a sum was a reasonable charge. The court held that he could not set aside the contract on the ground of fraud simply because the fee was unreasonable. It further said that it was not sufficient to show that the contract was procured by fraud to prove that the surgeon charged more than other surgeons charged for a similar operation in the same city. There must be some mental distress caused by the attending circumstances, which would amount to fraud in law, because the party seeking to enforce his contract had taken an unconscionable advantage of one who, under the circumstances, had a right to rely on his representation that the fee was a reasonable one. In that case the contract was made before the operation was performed. Here the same principle applied, the services having been performed before the fee charged by the dentist was paid, the plaintiff being under no duress whatever, but making the payment of his own volition simply because the dentist told him the charge was a reasonable one. That was not sufficient to establish fraud. Again, the supreme court says in this case that the rules governing the duty and liability of physicians and surgeons in the performance of professional services are applicable to practitioners of the kindred branches of the healing art, such as dentists, oculists and manipulators of roentgen-ray machines.

Rules Applied to Contracts Between Physicians

(Jones v. Kessler (W. Va.), 126 S. E. R. 344)

The Supreme Court of Appeals of West Virginia, in affirming a judgment which set aside a verdict rendered in favor of the plaintiff for $2,750.13 for surgical fees and $40,000 for damages, and which granted the defendant a new trial, says that the action was one for the alleged breach of contracts alleged to have been made between the plaintiff and the defendant, physicians and surgeons. The plaintiff offered to prove that at the time the written contract between him and the defendant was entered into the written agreement was not intended to and did not cover the entire contract, but was intended to cover only the manner of payment and consideration for the contract then and there being considered; that the contract had been discussed in a general way; and that after the execution of such contract which had been discussed, a subsequent agreement was entered into covering the matters that had been intentionally left out of the written contract. On objection by the defendant, the lower court rejected this testimony; and no error is found in its action in doing so. The written agreement was unambiguous in its terms. The interest conveyed by the defendant to the plaintiff in certain hospitals was fully described. The consideration was set out with particularity. The writing on its face was couched in such terms as imported a legal obligation without any uncertainty as to the object or extent of the engagement. The change that was sought to be ingrafted on the written instrument by oral evidence—that of establishing a clinic in connection with the hospitals—was so closely connected with the principal transaction as to form a part and parcel of it. This could not be done. The general rule that all prior negotiations are merged in the written contract finally agreed on and apparently complete and unambiguous, and that oral evidence is not admissible to add to or vary its terms, is well settled. Likewise, as a general rule, oral testimony is not admissible to contradict or vary the terms of a written instrument, by attempting to show either prior negotiations or a contemporaneous oral agreement.

But a written contract may be modified or its terms altered by a subsequent valid oral agreement, and this may be shown in a proper case. As a rule, a consideration must be shown. In this case the trial court permitted evidence to go to the jury tending to prove a subsequent agreement of the plaintiff with the defendant concerning an interest in surgical fees that might be thereafter earned under a partnership arrangement then existing between the defendant and certain other physicians and surgeons. It was urged by the defendant that there was no consideration for this alleged subsequent oral agreement between him and the plaintiff. However, if the consideration named in the written instrument in controversy did not form a consideration for the subsequent oral agreement, the labor that the plaintiff would perform in order to share in said surgical fees would be a consideration. This testimony was properly admitted.

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Chicago, Oct. 20-24. Dr. Luther C. Peter, Chestnut and 20th Streets, Philadelphia, Secretary.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Hot Springs, Va., Sept. 16-18. Dr. James E. Davis, 111 Josephine Avenue, Detroit, Secretary.

American Association of Railway Surgeons, Chicago, Oct. 21-23. Dr. Louis J. Mitchell, 29 East Madison Street, Chicago, Secretary.

American College of Radiology and Physiotherapy, Chicago, Oct. 19-22. Dr. Roy W. Fouts, 121 South 33d Street, Omaha, Neb., Secretary.

American Electrotherapeutic Association, Chicago, Sept. 15-17. Dr. Richard Kovacs, 223 East 68th Street, New York, Secretary.

American Public Health Association, St. Louis, Oct. 19-22. Mr. Homer N. Calver, 370 Seventh Avenue, New York, Executive Secretary.

American Roentgen Ray Society, Washington, D. C., Sept. 22-25. Dr. Charles L. Martin, Baylor Hospital, Dallas, Texas, Secretary.

Association of Military Surgeons of the United States, New York, Oct. 8-10. Col. J. R. Kean, U. S. A. Ret., Army Medical Museum, Washington, D. C., Secretary.

Colorado State Medical Society, Colorado Springs, Sept. 29-Oct. 1. Dr. F. B. Stephenson, Metropolitan Building, Denver, Secretary.

Delaware State Medical Society, Wilmington, Oct. 13-14. Dr. W. O. La Motte, Industrial Trust Building, Wilmington, Secretary.

Idaho State Medical Association, Pocatello, Sept. 3-5. Dr. J. N. Davis, Kimberly, Secretary.

Indiana State Medical Association, Marion, Sept. 23-25. Mr. T. A. Hendricks, Hume Mansur Building, Indianapolis, Executive Secretary.

Kansas City Clinical Society, Kansas City, Mo., Oct. 5-9. Dr. James R. McVay, Rialto Building, Kansas City, Mo., Secretary.

Kentucky State Medical Association, Owensboro, Oct. 5-9. Dr. A. T. McCormack, 532 West Main Street, Louisville, Secretary.

Michigan State Medical Society, Muskegon, Sept. 8-10. Dr. F. C. Warnshuis, Powers Theatre Building, Grand Rapids, Secretary.

Mississippi Valley Conference on Tuberculosis, Lansing, Mich., Sept. 15-17. Dr. T. J. Werle, 209 W. Shiawassee Street, Lansing, Mich., Executive Secretary.

Missouri Valley, Medical Society of the, St. Joseph, Sept. 30-Oct. 2. Dr. Charles Wood Fassett, 115 East 31st Street, Kansas City, Mo., Secretary.

Nevada State Medical Association, Elko, Sept. 4-6. Dr. C. E. Piersall, 17 N. Virginia Street, Reno, Secretary.

Oregon State Medical Society, Medford, Sept. 2-4. Dr. C. L. Booth, 1021 Selling Bldg., Portland, Secretary.

Pennsylvania, Medical Society of the State of, Harrisburg, Oct. 5-8. Dr. Walter F. Donaldson, Jenkins Arcade, Pittsburgh, Secretary.

Utah State Medical Association, Salt Lake City, Sept. 7-12. Dr. William L. Rich, Boston Building, Salt Lake City, Secretary.

Vermont State Medical Society, St. Johnsbury, Oct. 15-16. Dr. William G. Ricker, 29 Main Street, St. Johnsbury, Secretary.

Virginia, Medical Society of, Richmond, Oct. 13-16. Miss Agnes V. Edwards, 104½ West Grace Street, Richmond, Secretary.

Washington State Medical Association, Seattle, Sept. 17-19. Dr. C. H. Thomson, Cobb Building, Seattle, Secretary.

Wisconsin, State Medical Society of, Milwaukee, Sept. 16-18. Mr. J. G. Crownhart, 558 Jefferson Street, Milwaukee, Executive Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to The Journal for a period of three days. No foreign journals are available prior to 1920, nor domestic prior to 1923. Requests should be accompanied by stamps to cover postage (6 cents if *one* and 12 cents if two periodicals are requested).

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

29: 581-728 (May) 1925

*Parenchymatous Nephritis. I. General Systemic Disorder. S. W. Clausen, St. Louis.—p. 581.
*Parenchymatous Nephritis. II. Infection of Paranasal Sinuses as Etiology. S. W. Clausen, St. Louis.—p. 587.
*Parenchymatous Nephritis. III. Surface Tension of Blood Serum. S. W. Clausen, St. Louis.—p. 594.
*Craniotabes and Rickets. S. J. Wilson and M. Seldowitz, Brooklyn.—p. 603.
Distribution of Inorganic Phosphorus in Blood of New-Born. E. A. Riesenfeld, A. R. Rose and I. Handleman, New York.—p. 611.
Magnoscope; Electrical Stethoscope. A. Sato and H. Nukiyama, Sendai, Japan.—p. 618.
Infection with Plaut-Vincent's Fusospirillar Organisms. Lung Abscess Cured by Neo-Arsphenamin. R. A. Spano, Buffalo.—p. 621.
*Lymphatic Leukemia with Leukopenia in Young Children. A. H. Washburn, Boston.—p. 631.
*Kidney. Filter for Bacteria. III. Rôle of Technic on Apparent Excretion of Bacteria by Kidney. H. F. Helmholz and R. S. Field, Rochester, Minn.—p. 641.
*Id. IV. Effect of Clamping Renal Artery or Renal Vein on Passage of Bacteria into Urine. H. F. Helmholz and R. S. Field, Rochester, Minn.—p. 645.
Recent Work in Anatomy, Physiology and Pathology of Infancy and Childhood. J. B. Holmes, Baltimore.—p. 650.

Parenchymatous Nephritis; Systemic Disorder.—One hundred and twenty-five cases are analyzed by Clausen. Twenty-three were of the parenchymatous type and 102 of the hemorrhagic type. The mortality was ten and nineteen, respectively. Clausen concludes that parenchymatous nephritis is a form of nephritis distinct from the hemorrhagic. It is caused by focal infections with staphylococcus. It consists in a widespread systemic disorder, characterized by susceptibility to infection and by loss of body protein. The necessary therapy of parenchymatous nephritis includes (*a*) treatment of focal infection, and (*b*) high protein, high caloric diet.

Nasal Sinusitis as Cause of Parenchymatous Nephritis.—In a series of eleven cases of parenchymatous nephritis occurring in a period of three years, nasal sinusitis was invariably present. Evidence is presented by Clausen that the sinus infection is an important factor in the causation of this disease.

Surface Tension of Blood Serum in Nephritis.—In glomerular nephritis Clausen found the surface tension to be slightly increased. In cardiac edema, the serum surface tension is not decreased. In parenchymatous nephritis, the surface tension is much diminished. As the surface tension returns to normal, albuminuria diminishes. Edema in parenchymatous nephritis is correlated with low serum protein. Incomplete correlation exists between low serum surface tension and low serum protein in a variety of conditions.

Craniotabes and Rickets.—One hundred and sixty-four cases of craniotabes were studied by Wilson and Seldowitz. The association of craniotabes to rickets was found to be inconsistent, and inference was made that this association is only a coincidence. The age incidence of craniotabes was found to be earlier than that of rickets. Season was found to have a definite influence on the occurrence of craniotabes, the greatest number of cases appearing in May, June and July, and a lesser number of cases at the end of the summer. Exposure to sunlight had a marked beneficial effect on craniotabes. In 42 per cent. of cases the areas calcified at the end of the first month, and in 91 per cent. at the end of the third month. Season had a definite influence on the disappearance of craniotabes, 93 per cent. of the patients being cured in August and September, irrespective of the kind of therapeutic agent employed. Season, rather than age, is suggested as the main factor in the disappearance of craniotabes.

Lymphatic Leukemia in Children.—Two cases of lymphatic leukemia are reported by Washburn which presented certain unusual features. The course in each case was unusually chronic. The first patient also showed two definite remissions, while under observation. The blood, in both patients, was characterized by a persistent leukopenia, with many atypical cells in the blood smears. The diagnosis was supported in the first patient by the necropsy findings and in the second by the biopsy report. Attention is called to the importance of frequent and thorough studies of the blood. These two patients were aged 2 and 4 years, respectively. The duration of the disease was three months in both cases. Treatment had no effect on the course of the disease.

Kidney: Filter for Bacteria.—According to Helmholz and Field, technic plays an important rôle in the determination of the excretion of bacteria by the kidney. Urine obtained by the use of the catheter contains bacteria in almost 50 per cent. of the instances. Even with this possible error in technic, bacteria do not constantly appear in the urine with marked diuresis.

Effect of Vascular Obstruction on Kidney as Filter for Bacteria.—Helmholz and Field assert that the renal filter remains intact for periods of one hour and even longer, when the renal artery has been clamped for periods up to one hour. Clamping the renal vein for three minutes damaged the renal filter so that the bacteria passed through in forty minutes. In only four of sixteen experiments in which the renal vein was clamped for periods up to one hour were bacteria cultured from the urine.

American Review of Tuberculosis, Baltimore

11: 375-470 (July) 1925

*Tuberculosis in Infancy and Childhood. I. Relation of Exposure to Infection. J. A. Myers and E. Magiera, Minneapolis.—p. 375.
*Id. II. Detection of Primary Lesion in Children. J. A. Myers and E. O. Lodmell, Minneapolis.—p. 386.
*Id. III. Influence of Chronic Pulmonary Lesions. C. O. Rollie and J. A. Myers, Minneapolis.—p. 393.
*Id. IV. Incidence of Pleurisy. J. A. Myers and C. O. Rollie, Minneapolis.—p. 398.
*Id. V. Relation of Tuberculosis Infection to Calcification of Hilum Lymph Nodes of Lung. J. A. Myers and K. Tsiang, Minneapolis.—p. 403.
*Id. VI. D'Espine's Sign and Stereoscopic Roentgenograms in Detection of Enlarged Hilum Lymph Nodes. J. Tsiang and J. A. Myers, Minneapolis.—p. 407.
*Pulmonary Tuberculosis in Pregnant Women Terminating in Spontaneous Pneumothorax Shortly Before Labor. J. I. Dubrow, Denver.—p. 413.
*Studies on Tuberculosis Infection. X. Early Dissemination of Tubercle Bacilli After Intracutaneous Inoculation of Guinea-Pigs of First Infection. H. S. Willis, Baltimore.—p. 427.
*Id. XI. Early Dissemination of Tubercle Bacilli After Intracutaneous Inoculation of Immune Guinea-Pigs of Reinfection. H. S. Willis, Baltimore.—p. 439.
*Production of Acid-Fastness in Nonacid-Fast Bacilli. L. K. Campbell, Chicago.—p. 450.
*Amino-Acid Content of Tubercle Bacillus. L. K. Campbell, Chicago.—p. 452.
Alanin and Histidin Metabolism of Tubercle Bacillus. L. K. Campbell, Chicago.—p. 458.

Relation of Exposure to Infection in Tuberculosis.—It is obvious, from the study made by Myers and Magiera that the incidence of tuberculous infection is high among children with histories of exposure. Pirquet tests were positive in 435 of 761 cases with definite histories of exposure, in 224 of 784 cases with no histories, and in 174 of 455 cases with questionable histories of exposure.

Primary Tuberculosis Lesion in Children.—Since approximately 45 per cent. of the 1,412 cases analyzed by Myers and Lodmell reacted positively to the Pirquet test and only 232 presented roentgen-ray evidence of primary foci in the lung parenchyma, it would appear that many primary foci develop elsewhere. In many cases with positive Pirquet reactions and no roentgen-ray evidence of primary foci in the lungs, there was definite roentgen-ray evidence of hilum node enlargement.

Incidence of Chronic Pulmonary Tuberculosis.—Among 2,000 children examined by Rollie and Myers in the outpatient department of a school for tuberculous children there were thirty who showed definite evidence of pulmonary involvement. Of these, six were due to pneumonia. The remaining twenty-four cases were considered tuberculous although tubercle bacilli were not demonstrated in all cases.

Incidence of Pleurisy in Pulmonary Tuberculosis.—Among the 2,000 children examined by Myers and Rollie 125 children gave histories of pleurisy. There were only seventeen in whom definite evidence of old pleurisy could be elicited by the physical or roentgen-ray examination. There were twenty-four children with evidence of pleurisy who gave definite histories of exposure, while in the remainder there was only questionable or no history of exposure. Among the entire group of pleurisy cases there were thirty-four who reacted positively to the Pirquet test.

Relation of Pulmonary Tuberculosis to Calcification of Hilum Lymph Nodes.—Among 1,412 cases examined by Myers and Tsiang there were 1,024 cases with findings which the roentgenologists interpreted as areas of calcification in the hilum lymph nodes. Of these 1,024 cases, 70 per cent. presented evidence of only slight calcification, 29 per cent. presented evidence of a moderate amount of calcification, while only 1 per cent. showed evidence of marked calcification. Of the total number showing evidence of calcification of the hilum nodes, 45 per cent. reacted positively to the Pirquet test. When grouped according to the amount of calcification present, it was found that 43 per cent. of those with slight calcification, 53 per cent. of those with moderate calcification, and 54 per cent. of those with marked calcification reacted positively to the Pirquet test.

Diagnostic Value of D'Espine's Sign.—Of 1,057 children examined by Tsiang and Myers 311 showed the presence of D'Espine's sign, 211 of which presented roentgen-ray evidence of hilum node enlargement or calcification or both. The remaining 100 with D'Espine's sign present showed no evidence of hilum node enlargement or calcification by roentgen-ray examination. The remaining 746 children in the group presented roentgen-ray evidence of slight or moderate enlargement or calcification or both of the hilum nodes but D'Espine's sign was absent.

Pulmonary Tuberculosis in Pregnant Woman Terminating in Spontaneous Pneumothorax.—The case reported by Dubrow was a young primipara with advanced pulmonary tuberculosis in whom spontaneous pneumothorax developed on the day of the onset of labor. Permission to interrupt pregnancy during the early months had been denied, and the onset of labor shortly after development of a valvular spontaneous pneumothorax determined the immediate course, in spite of the distressing and dangerous symptoms. A practically normal labor resulted and a healthy child was born, which subsequently showed no signs of tuberculosis. The child was not nursed by the mother and developed normally. The mother succumbed fifteen days after delivery; not, however, from the tuberculosis or the complicating spontaneous pneumothorax, but as the result of renal incompetence which became evident eight days after delivery.

Dissemination of Tubercle Bacilli.—Animal experiments have shown Willis that tubercle bacilli are disseminated rapidly from a point of inoculation in the skin of normal guinea-pigs. Migration of bacilli from the site of inoculation is often accomplished within the first hour after their introduction, and some bacilli have always migrated from the area by three hours after inoculation. Bacilli always spread from a point in the skin of the side to the axillary and inguinal lymph nodes within twenty-four hours of their inoculation. This is a distance of about 5 cm.

Dissemination of Tubercle Bacilli.—In marked contrast to the rapid dissemination of tubercle bacilli from a point of inoculation in the skin of normal guinea-pigs of first infection, Willis says, dissemination of bacilli is materially retarded in the skin of guinea-pigs of reinfection, made allergic or immune by a previous infection with tubercle bacilli. In the normal animal transit from the site of inoculation in the skin to the axillary or inguinal lymph nodes, 4 or 5 cm. distant, requires twenty-four hours or less. In the immune animal such transit is accomplished in a little less than three weeks; longer than two weeks is always required. In the immune animal, a few of the bacilli introduced into the skin do ultimately reach remote parts of the body, but their numbers are relatively small, compared with the numbers that spread from the site of reinfection in the normal animal. The immune animal, therefore, appears definitely to fix bacilli at the point of introduction, for at least longer than four days after inoculation, and to prevent widespread or early dissemination. This finding is a further confirmation of the hypothesis that specific immunity to tuberculosis is accomplished, in part, through a fixation of bacilli to reinfection by the rapid inflammatory response of the allergic reaction.

Acid Fastness in Nonacid-Fast Bacilli.—The results of Bienstock and Hottstein could not be confirmed by Campbell. The nonacid-fast bacilli used by him were not rendered acid-fast by prolonged cultivation on solid mediums containing a lipoidal substance in suspension.

Amino-Acid Content of Tubercle Bacillus.—Campbell concludes that the protein of the tubercle bacillus is in some respects similar to the histones, all of which contain large quantities of arginin.

Annals of Surgery, Philadelphia

82: 1-192 (July) 1925

*Mechanism of Formations and Growth of Malignant Tumors. A. Carrel, New York.—p. 1.
*Transplantation of Distant Skin Flaps for Cure of Intractable Basal Cell Carcinoma. J. S. Horsley, Richmond, Va.—p. 14.
*Malignant Tumors of Thyroid; Epithelial Types. A. Graham, Cleveland.—p. 30.
*Tumors of Male Breast. K. Speed, Chicago.—p. 45.
*Bilateral Mammary Cancer Operations. C. A. McWilliams, New York.—p. 63.
*Pseudorecurrences After Radical Amputation of Breast for Carcinoma. A. V. Moschoocowitz, New York.—p. 81.
*Etiology of Cancer of Stomach. H. Cabot and G. C. Adie, Ann Arbor, Mich.—p. 86.
Papillomata of Large Bowel. V. C. David, Chicago.—p. 109.
Carcinoma of Body of Uterus. Fifty Cases. L. Davis, Boston.—p. 131.
*Metastatic Carcinoma in Ureter Associated with Ureteral Stricture. W. J. Carson, Baltimore.—p. 142.
*Primary Carcinoma of Duodenum. Fifteen Cases. G. B. Eusterman, D. M. Berkman and T. S. Swan, Rochester, Minn.—p. 153.
*Epitheliomas in Sebaceous Cysts. H. D. Caylor, Rochester, Minn.—p. 164.
Carcinoma of Rectum. J. A. Blake, New York.—p. 177.

Growth of Malignant Tumors.—Carrel presents certain facts that he has observed in studying normal and cancer tissues, and discusses their significance from both points of view—the formation of tumors and their growth.

Transplantation of Distant Skin Flaps in Operations for Carcinoma.—The striking thing emphasized by Horsley in citing ten cases is, that though there has been a recurrence in five, in no instance has the recurrence originated along the margin of or within the transplanted tissue when the flap was taken from a distance of an inch or more. Such instances as these, Horsley says, appear to indicate that flaps transplanted from a distance have a distinct inhibitory effect on basal cell cancer. Just how deep this inhibitory effect extends it is difficult to say—probably from an eighth to a fourth inch (0.3 to 0.6 cm.). This suggests a new principle for the treatment of intractable basal cell cancers that have not been cured by other measures.

Malignant Epithelial Tumors of Thyroid.—Graham claims no originality for the observation that carcinomas of the thyroid frequently invade the blood stream and metastasize by this route. He is unaware, however, that there has been a systematic attempt made to determine the incidence of invasion of the blood vessels in a series of cases, to recognize types of lesions, in which one may or may not expect to find invasion of the blood vessels as a means of differentiation of benign and malignant adenomata. The ultimate value of invasion of blood vessels as an indication of malignancy of thyroid epithelial tumors, and particularly its value as a means of distinguishing between benign and malignant adenoma, is a problem for the future, but on the basis of Graham's experience to date it seems worthy of considerable confidence.

Tumors of Male Breast.—According to Speed, the relative occurrence of tumors of the male breast is between 1 and 2 per cent. of all breast tumors. Male breast cancer progresses slowly. Trauma, especially occupational trauma, seems to be an important etiologic factor. Direct involvement of fascia and muscle by microscopic lymphatic extension is very common. A radical operation for removal of malignant breast tumors is just as necessary in the male as in the female. The male offers probably a better prognosis and a longer life expectancy after radical removal of breast cancer than does the female. Five cases are reported.

Bilateral Mammary Cancer.—McWilliams reports on ninety-eight patients with bilateral mammary cancers, eleven of which were simultaneous, while eighty-seven were consecutive. The frequency of bilateral breast cancers (including both simultaneous and consecutive together) is 4.9 per cent. of all mammary cancers (in 3,132 breast cancers, the bilateral lesions occurred 154 times). Simultaneous bilateral cancers occur about once in 500 breast cancers, or 0.2 per cent., and consecutive bilateral cancers occur in 4.7 per cent. As a means of comparison, McWilliams has collected the results of 1,720 operations for unilateral breast cancers; of these, 31.6 per cent. of patients were alive five years after the single operation, while of the eighty-seven patients with consecutive bilateral cancer operations, forty-seven, or 54 per cent., were alive five years after the first operation, and twenty-one, or 24.1 per cent., were alive five years after the second operation. The data as to the ultimate outcomes following operations on these ninety-eight patients for bilateral mammary cancers seem to establish: First, that, compared with the ultimate results following operations for unilateral mammary cancer, the extreme pessimism current regarding the final results following operations for the bilateral lesions is not justified. Secondly, that the second breast cancer, in probably a large number of patients, is a primary growth, entirely independent of the first breast cancer.

Pseudorecurrences of Breast Cancer After Operation.—Three cases of pseudorecurrences after radical extirpation of the breast for cancer are reported by McWilliams. These pseudorecurrences simulate physically true recurrences. They possess the following characteristics: (*a*) they appear very soon after the operation; (*b*) they are situated within or very close to the cicatrix; (*c*) they are painless and hard, and (*d*) they do not increase in size. Microscopically they represent foreign body cysts, the foreign body being either a catgut ligature or a gauze thread.

Etiology of Cancer of Stomach.—A review of 116 consecutive cases of cancer of the stomach, with particular relation to etiology, is made by Cabot and Adie. In only nine of these cases was there a history of ulcer. The type of cancer is known in fifty-six cases. Of these, twenty-five were adenocarcinoma, nineteen were scirrhus carcinoma, seven were mucoid carcinoma, three were medullary carcinoma and two were colloid carcinoma. There are only fifty-six cases in which the whole region was at the disposal of the pathologist. In this group there are five cases in which there is clear evidence of both peptic ulcer and cancer. This would appear to require the admission that cancer is a definite result of ulcer in a certain proportion of cases.

Metastatic Carcinoma in Ureter.—Three cases of metastatic carcinoma in the ureter are reported by Carson. The seats of the primary tumor were: bladder, prostate and cervix uteri. In each case the cancer cells were found in the perivascular lymphatics of the ureter. Ureteral strictures, inflammatory in origin, were found in each case.

Primary Carcinoma of Duodenum.—Of fifteen cases of primary carcinoma of the duodenum reported by Eusterman et al. six were in the supra-ampullary portion, six in the ampullary, and three in the infra-ampullary portion. The onset of symptoms was fairly abrupt in 50 per cent. of the cases. Flatulency, pain or distress, the retention type of vomiting, dehydration and toxemia were the major symptoms. In most cases the course was rapidly progressive. Jaundice, except as a terminal symptom, was rare, even in the ampullary group. Tumor was found in five (33.33 per cent.), and it was present only in supra-ampullary and ampullary portions. In twelve of the fifteen cases in which gastric analysis was made, seven had free hydrochloric acid in subnormal amount; five had achlorhydria. Gross gastric retention was present in all except one. In the infra-ampullary group excess fluid containing bile and pancreatic juice was noted. A dilated stomach with considerable barium residue without a demonstrable gastric lesion was the usual roentgen-ray finding. The toxemia of high intestinal obstruction is a serious complication and invariably was present in these cases. Diagnosis and treatment are discussed.

Epithelioma of Sebaceous Cysts.—Caylor urges that all sebaceous cysts be removed, for they may become the site of malignant tumor. Approximately 3.44 per cent. of the sebaceous cysts in his series eventually became malignant. The lesion should be excised if it is ulcerated, and excision is imperative if the lesion recurs. Heredity was apparently an etiologic factor in the development of epitheliomas in the cysts studied, since 58.33 per cent. of the patients with epitheliomas gave a family history of malignancy, while only 13.83 per cent. of the patients with simple uncomplicated sebaceous cysts gave a personal or family history of malignancy. Local irritation, while it may be an item in causing the development of malignant change, was not the most important factor.

Johns Hopkins Hospital Bulletin, Baltimore

37: 1-74 (July) 1925

*Experimental Hypophysectomy. I. Effect on Maintenance of Life. W. E. Dandy and F. L. Reichert, Baltimore.—p. 1.

*Normal Rhythm of White Blood Cells. F. R. Sabin, R. S. Cunningham, C. A. Doan and J. A. Kindwall, Baltimore.—p. 14.

Experimental Hypophysectomy.—Dandy and Reichert found no evidence to support, and every evidence to refute, the assumption that the hypophysis is essential to life, or that the group of symptoms which have been described by others as preceding death in hypophysectomized animals are of hypophyseal origin.

Normal Rhythm of Leukocytes.—Sabin and her associates have determined that there is a characteristic rhythm of the total white blood cells with an interval of approximately an hour's duration. The total number of these cells varies in the proportion of 1 to 2. The total number is increased in the afternoon regardless of whether food has been taken or not, and this entire increase is the result of an increase in the number of the neutrophilic leukocytes. The neutrophilic leukocytes die out in showers, often of considerable proportions. These dead cells are promptly replaced, though whether from some reservoir or directly from the bone marrow, the authors have not yet determined. The lymphocytes have a shorter rhythm than the leukocytes, but their total number varies in the proportion of 1 to 3, in contrast to the variation of 1 to 2 for the leukocytes. A small proportion of the monocytes are normally undergoing division in the circulating blood. In five out of six apparently normal persons, small percentages of myelocytes were found in the circulating blood.

Journal of Industrial Hygiene, Baltimore

7: 293-344 (July) 1925

*Acute Dermatitis Among Painters Employed in Industrial Plant. J. A. Turner, Cincinnati.—p. 293.

Forty-Two Occupational Disease Hazards in Tanning Industry. D. K. Minister, Cincinnati.—p. 299.

*Size-Frequency and Identification of Certain Phagocytosed Dusts. P. Drinker, Boston.—p. 305.

Effect of Atmospheric Conditions on Health and Efficiency (Cotton Industry). S. Wyatt, London.—p. 317.

Paint Solvents Cause Dermatitis.—Turner emphasizes the fact that paint solvents are capable of producing a dermatitis unless proper care is used in removing them from the skin. This can best be accomplished by the use of soap and water and then thoroughly rinsing with clear warm water and seeing that the skin is dried. The solvents turpentine, paint-thinner and naphtha, appear to be the chief offenders in producing the dermatitis in the group of cases presented in this report. The eruption appeared only on the hands and forearms, as they were the only parts exposed. The eruption is characterized chiefly by a dry skin. Within twenty-four hours after exposure many small blisters are formed containing a clear serous fluid. There is a marked tendency for these blisters to coalesce and form very large ones. When the blister is broken, an inflamed base is left from which exudes a serous fluid. The predominant symptoms complained of are burning and itching. Healing is attended with an appreciable amount of desquamation. A 1:1,000 solution of potassium permanganate, applied daily to the eruption, gives immediate relief from the burning and itching and at the same time promotes healing.

Dust Distribution in Lungs.—From the size measurement of phagocytosed dusts and their approximate frequency of occurrence in endothelial cells from sputum of men exposed to dusty air, an attempt is made by Drinker to predict the relative power of certain dust particles to produce pneumonokoniosis. From a comparison of dust inhaled, as sampled by electric precipitator, and dust in the cells from human sputum, selective phagocytosis is indicated. Photomicrographs of the dust cells and the size-frequency curve of the phagocytosed particles are given, with details of the method used in measuring the particles and determining their size-frequency distribution.

Journal of Infectious Diseases, Chicago

37: 1-95 (July) 1925

- *Green Coloration by Certain Streptococci on Blood Agar. W. A. Hagan, Ithaca, N. Y.—p. 1.
- *Relationship of Hard Water to Health. II. Effect on Growth, Appearance and Well Being. J. T. Myers, Omaha.—p. 13.
- *Proliferative Reaction to Stimuli by Lytic Principle (Bacteriophage) and Its Significance. P. Hadley, Ann Arbor, Mich.—p. 35.
- *Antigenic Properties of Tissue Fibrinogen. C. M. Downs, Lawrence, Kan.—p. 49.
- *Study of Yeasts from Human Sources. J. F. Peckham, Providence, R. I. —p. 52.
- Use of Rabbits in Study of Infectious Abortion. B. L. Warwick, E. M. Gildow and F. B. Hadley, Madison, Wis.—p. 62.
- Mixed Infection in Guinea-Pigs with Bacterium Abortum and Mycobacterium Tuberculosis. A. F. Schoenfeld and C. M. Carpenter, Ithaca, N. Y.—p. 68.
- Form and Growth of Cholera Vibrio. A. R. Henrici, Minneapolis.—p. 75.
- *Formation of Antibodies to Sheep Blood in Experimental Tuberculosis of Rabbits. L. Hektoen, Chicago, and H. J. Corper, Denver.—p. 82.
- Bacterial Factors in Pyorrhea Alveolaris. III. Isolation of B. Tetani, B. Welchii and Other Sporulating Anaerobes from Human Saliva. I. C. Hall, Ithaca, N. Y.—p. 87.
- Precipitin Production Through Lens Injury. M. F. Guyer, Madison, Wis.—p. 93.

Cause of Green Coloration of Streptococci in Culture.—The explanation given by Hagan for the formation of a green discoloration about the colonies of certain streptococci, and presumably of other green-forming bacteria when growing on blood agar, is that it is due to the action on the blood corpuscles of peroxid and acid, substances which are produced simultaneously by these organisms when in the period of active multiplication. The hemolysis which occurs about the periphery of the green zone when the period of incubation is prolonged, or when the plate culture is refrigerated while yet in an actively growing condition, is probably due to diffusing acid. Peroxid and acid have an antagonistic action on blood corpuscles, peroxid tending to discolor and protect them from hemolysis by the acid. Hemolysis results, therefore, only when peroxid production diminishes or ceases.

Relationship of Hard Water to Health.—The result of Myers' experiments on the relationship between natural hard water and the growth of animals was virtually nil. In no instance did animals on distilled water develop better than those on hard water. The reverse was true under several conditions.

Proliferative Reaction of Bacteriophage to Stimuli.—Hadley points out that abnormally rapid growth (proliferation) is frequently observed in bacterial colonies under the influence of the lytic agent. Moreover, although such proliferations may be regarded as analogous to those seen in the tissues of plants and animals experiencing an infection with an ultravirus; similar proliferation may also result from mechanical and chemical stimuli. The observations reported, therefore, while in harmony with d'Herelle's conception of the bacteriophage as an ultravirus, cannot serve as proof of this view. The observations reported are also used as the point of departure for formulating certain modifications in d'Herelle's view which would make possible a correlation between his cases and a class of instances at present excluded by him from what he regards as the legitimate field of lytic action. It is concluded that the phenomenon of transmissible bacterial autolysis is widespread in the bacterial world; and that, although d'Herelle's hypothesis offers the easiest and most obvious explanation of the problem, we should not yet close our eyes to other possible avenues of approach.

Antigenic Properties of Tissue Fibrinogen.—Downs asserts that a protein which is an active blood coagulant and which has antigenic properties distinct from the serum antigens can be precipitated from lung extracts. Proteins that are chemically and antigenically identical with the lung protein can be isolated from liver and kidney extracts. These proteins show species specificity in their antigenic properties but not in their action in blood clotting.

Yeasts from Human Sources.—Fifty-one cultures of yeasts from throat infections, bronchitis, stomatitis and vaginitis were identified by Peckham. Forty-one of the cultures were pathogenic, producing abscesses in guinea-pigs; ten were nonpathogenic. One of the pathogenic yeasts, isolated from a throat culture and injected into animals, caused a lymphopenia; induced the formation of antibodies; was toxic in systemic effect and produced localized lesions which are characterized by necrosis, by an infiltration of endothelial cells which fuse to form giant cells, and by a proliferation of fibroblastic tissue so marked in the pancreas that the islands of Langerhans may be obliterated and a consequent glycosuria develop. From the effect of yeast on the blood and tissues of animals, it seems possible that they may become additional etiologic factors in infections caused primarily by other organisms.

Formation of Antibodies in Tuberculosis.—The effect of various types of tuberculosis in the rabbit on the formation of antibodies was investigated by Hektoen and Corper. A rapidly fatal general tuberculosis in the rabbit from the intravenous injection of virulent bovine tubercle bacilli was without definite effect on the agglutinin and lysin content of the serum even to within a few days of death, while precipitin formation seemed to be slightly retarded. Local subcutaneous tuberculosis in rabbits produced by the injection of avirulent human tubercle bacilli ten and twenty-six days before the intraperitoneal injection of sheep blood had no appreciable effect on lysin or precipitin formation, but two of the rabbits given sheep blood forty-three days after infection maintained high specific lysin and precipitin titers for 445 days respectively. Whether the tuberculosis was the cause of the unusual reaction of these two rabbits has not been determined. Rabbits infected subcutaneously with avirulent human tubercle bacilli and given sheep blood intravenously at different intervals after infection revealed slight variations in antibody formation from the usual course. Therefore it is evident that tuberculosis in the rabbit, either general or local, apparently has no marked influence on the antibodies that develop from the injection of sheep blood. In exceptional cases, it may result in a prolongation of antibody accumulation in the blood.

Missouri State Medical Association Journal, St. Louis

22: 241-292 (July) 1925

- Medical Education, Medical Legislation and Medical Distribution. W. A. Clark, Jefferson City.—p. 241.
- Cataract Extraction with Round Pupil. E. S. Connell, Kansas City.—p. 247.
- *Pericolic Adhesions as Factor in Diagnosis of Chronic Appendicitis and Failure to Obtain Relief by Removal of Appendix. C. H. Shutt, St. Louis.—p. 249.
- *Treatment of Tetanus. J. L. Ferris and A. L. Fuerth, Cape Girardeau. —p. 253.

Pericolic Adhesions in Appendicitis.—Shutt advises that no case of chronic appendicitis should be operated without careful and, if possible, repeated examination. Pericolic adhesions form a definite pathologic entity. They should be considered in all chronic conditions about the appendix and should be searched for in all operations for chronic appendicitis. Pericolic adhesions frequently exist without any trouble with the appendix and if not relieved removal of the appendix affords no relief for the patient. Pericolic adhesion cases make good recoveries when properly operated and managed during the period of operative convalescence.

Treatment of Tetanus.—An experience with seventy-one cases of tetanus has convinced Ferris and Fuerth that antitoxin in prophylactic doses is a specific in the prevention of tetanus. One thousand five hundred units of antitetanic serum should be given to all patients who have suffered lacerated or penetrating wounds. The dose should be repeated in ten days if the wound contains any necrotic material and again before any operative procedure. All wounds should be treated surgically; the injured or necrotic tissue should be excised and treated with 3 per cent. tincture of iodin. The mortality can be lowered by the routine use of large doses of antitetanic serum. When the disease has developed, an attempt should be made to saturate the patient with antitoxin before fixation of toxin has occurred in the nerve cells of the spinal cord. This is done by giving antitetanic serum intraspinally, intravenously, intramuscularly, subcutaneously and around the wound. Fifty thousand units should be given in the first twenty-four hours, increasing the dose by one-half daily until the patient is improved or dead.

Southern Medical Journal, Birmingham, Ala.

27: 491-562 (July) 1925

Essential Unity of Wassermann and Precipitation Tests. A. D. Dulaney, Columbia, Mo.—p. 491.
*Thymus in Infants. W. A. Mulherin, L. P. Holmes and H. P. Harrell, Augusta, Ga.—p. 494.
*Diathermy and Treatment of Pneumonia. G. F. Walsh, Fairfield, Ala.—p. 500.
Diverticulosis of Colon. H. P. Conley, Memphis, Tenn.—p. 503.
*Roentgenotherapy in Hyperthyroidism. J. W. Landham, Atlanta, Ga.—p. 506.
Hodgkin's Disease of Skin. B. Shelmire, Dallas, Texas.—p. 511.
Treatment of Pityriasis Rosea with Ultraviolet Light. J. C. Michael, Houston, Texas.—p. 519.
Development and Results of State-Wide Laboratory Service. L. C. Havens, Montgomery, Ala.—p. 521.
Causes of Death in Cholecystitis. W. A. Bryan, Nashville, Tenn.—p. 524.
Congenital Pyloric Stenosis. R. Hill, St. Louis.—p. 529.
*Blood Transfusions in Urology. M. L. Boyd, Atlanta, Ga.—p. 532.
*Cesarean Section in Eclampsia. H. R. Shands, Jackson, Miss.—p. 534.
Indications for Cesarean Section. W. R. Cooke, Galveston, Texas.—p. 538.
Conservative Treatment of Eclampsia. P. W. Toombs, Memphis, Tenn.—p. 541.
Value of Roentgenography to Otolaryngologist. E. A. Looper, Baltimore.—p. 550.
Combined Tonsil and Nasal Submucous Resection. J. B. Farrior, Tampa, Fla.—p. 554.

Size of Thymus.—A preliminary report is given by Mulherin, Holmes and Harrell of the thymus in 111 infants, eighty in the first week of life and thirty-one from 2 weeks to 2 years old. The lateral measurement of 3 cm. in the second intercostal space was taken as a working basis to represent the borderline between a normal and an enlarged thymus. The average lateral measurement of the thymus in the series was 2.96 cm. The incidence of clinically positive cases was 8.10 per cent.; potential cases 21.26 per cent.; normal cases, 70.27 per cent. Position of the diaphragm did not appear to make a material difference in the proper interpretation of thymic shadows for diagnostic purposes. The authors recommend, in making thymic radiograms in infancy, that the baby be made to cry, thereby uniformly securing forced expiration when taking the picture.

Diathermy in Pneumonia.—Walsh does not claim that diathermy reduces the death rate in pneumonia but if only on account of the symptomatic relief, it deserves a fair and impartial trial.

Roentgenotherapy in Hyperthyroidism.—Since there is a great percentage of cures accomplished by radiotherapy without mortality or bad cosmetic results, as is obtained by surgery, it is apparent to Landham that roentgen-ray treatment should be the method of choice.

Blood Transfusion in Urology.—In sixteen cases in which he has employed transfusions, the results have been so excellent that Boyd is an ardent advocate of their use not alone for the emergency where a life may be saved, but also for the purpose of stopping hemorrhage, preparing patients for operation, and for overcoming shock and prostration after operation.

Cesarean Section in Eclampsia.—Unless the eclamptic mother is fortunate enough to fall into the hands of a Stroganoff or a Tweedy, Shands feels that the chance for her life and her baby's will most probably be better if her surgeon or obstetrician uses the radical rather than the conservative method of treatment, provided, of course, that her attendant is a competent abdominal surgeon.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2: 97-152 (July 18) 1925

Overgrowth of Specialism. J. B. Hall.—p. 97.
Some Medical Aspects of Holidays. H. Rolleston.—p. 100.
Psychology of Animals Swallowed Alive. J. Bland-Sutton.—p. 104.
*Difficulties in Diagnosis of Leukemia. G. L. Gulland.—p. 108.
Site of Association's New House. E. M. Little.—p. 111.

Diagnosis of Leukemia.—Gulland regards leukemia as a sarcoma of the leukocytes. He asserts that until further research throws fresh light on the disease, the neoplastic theory of its causation is the most logical and satisfying explanation.

Calcutta Medical Journal

20: 415-460 (May) 1925

Blood Chemistry of Bengalee Students. Physiologic Normals. I. H. N. Mukherjee and J. C. Saha.—p. 415.
Plea for Immunotherapy in Kala-Azar. S. L. Rodrigues.—p. 421.
"Ecthyma" as Menace Against Smallpox Vaccination. A. Gupta.—p. 432.
Catheterization of Eustachian Tube. K. M. Sinh.—p. 435.

Journal of Neurology and Psychopathology, London

6: 1-90 (May) 1925

Experimental Anatomic Investigations Concerning Projections of Retina on Primary Optic Centers in Apes. B. Brouwer and W. P. C. Zeeman.—p. 1.
Does Autonomous Meningococcal Meningitis Exist and Can It Be Influenced By Serum Acting Locally? K. Lewkowicz.—p. 11.
Psychopathology of Lying. I. M. Altshuler.—p. 20.
Colloidal Benzoin Curve in Cerebrospinal Fluid. W. W. Payne.—p. 27.
Physiology of Brain Surgery. C. E. Reynolds.—p. 35.
Case of Bilateral Cortical Blindness. I. G. H. Wilson.—p. 42.

Journal of Pathology and Bacteriology, Edinburgh

28: 397-539 (July) 1925

*Action of Sensitized Antigen in Production of Specific and Isophile Hemolytic Immune Body. T. Iijima.—p. 397.
*Nature of Acquired Resistance to Bacteriophage Action. E. M. Burnet.—p. 407.
Conditions Governing Appearance of Tâches Vièrges in Bacteriophage Activity. F. M. Burnet.—p. 419.
Experimental Pneumococcal Infections of Lung. J. F. Gaskell.—p. 427.
*Thyroid in Experimental Tuberculosis. S. R. Gloyne.—p. 451.
*Epidemic Encephalitis in Rabbits. J. H. Dibble.—p. 457.
Immunologic Notes. VIII-XVI. A. T. Glenny, C. G. Pope, H. Waddington and U. Wallace.—p. 463.
Excretion of Water, Urea and Chlorids in Experimental Oxalate Nephritis. J. S. Dunn and N. A. Jones.—p. 483.
Relief of Experimental Arterial Anoxemia by Compressed Air. C. F. Nelson and P. Woodward.—p. 507.
Preparations of Certain Substituted Ureas and Their Use in Treatment of Trypanosomiasis. T. H. Fairbrother, F. A. Mason, W. H. Perkin and A. Renshaw.—p. 514.
Improved Method of Mounting Pathologic Specimens. C. M. Acland.—p. 523.
Temperature of White and Black and White Rats. C. Price-Jones.—p. 525.
Sarcoma of Ampulla of Vater, Without Jaundice, Leading to Acute Pancreatitis. H. H. Moll.—p. 528.

Sensitized Antigen.—The data given by Iijima are interpreted as proving that the sensitization of antigen leads to a neutralization of antigenic power, since the amount of immune body produced as the result of injecting fully sensitized antigen into animals is, in general, infinitesimally small as compared with that in control tests. A slight temporary increase of immune body which occurs soon after injecting the sensitized antigen is to be accounted for by a dissociation from the receptors of the injected antibody.

Resistance to Bacteriophage Activity.—Burnet asserts that on the basis of his observations Seiffert's "catalyst" theory of bacteriophage activity is modified to bring the phenomena of normal bacterial fission and of transmissible lysis into close dependence.

Thyroid in Experimental Tuberculosis.—In man the thyroid gland is only rarely affected with tuberculosis. Similarly, in the highly susceptible guinea-pig, experimentally infected with *B. tuberculosis,* tuberculous lesions of the thyroid are apparently not common. Lesions are fairly common in rabbits. But Gloyne's experiments show that thyroid gland substance of various animals has no bactericidal effect on the tubercle bacillus in vitro. Thyroid administered to experimentally infected guinea-pigs and rabbits over a course of several weeks does not arrest the disease. There appears to be little evidence for supposing that the thyroid itself has any direct antitoxic action in tuberculosis.

Experimental Epidemic Encephalitis.—Material from the central nervous system of ten cases of epidemic encephalitis was inoculated by Dibble into rabbits with negative results.

Kitasato Archives of Experimental Medicine, Tokyo

6: *199-300 (June) 1925*

*Cultivation of Causative Agent of Typhus Fever. S. Kusama, S. Yoskioka and K. Ando.—p. 199.
Trombiculae, Carriers of Pseudotyphus and Related Species from Sumatra. E. W. Walch.—p. 235.
*Alkaloids of Cocculus Diversifolius D. C.; I; Kukolin. K. Ohta.—p. 259.
*Id. II. Diversin. K. Ohta.—p. 283.

Causative Agent of Typhus.—Kusama and his associates obtained pure cultures of two stains of identical new specimens of a micro-organism by the ascites broth cultivation of pieces of the kidney of the Japanese monkey, which had been infected by the inoculation of two strains or passage viruses of typhus fever. This recovered micro-organism caused a febrile attack in the Japanese monkey like that caused by the passage virus, and the anatomic and histologic changes were also identical. Moreover, the animal, which had tolerated the febrile attack by the recovered micro-organism, acquired an immunity against the passage virus of typhus fever, and vice versa. From their experimental data the authors believe that this micro-organism is the germ of typhus fever.

Kukolin.—Ohta found that *Cocculus diversifolius* D. C. contains a new alkaloid, kukolin, which increases reflexes, contracts the pupils, hastens respiration, initiates cramps with eventual paralysis by central action. The heart muscle, intestine, uterus, in fact, all muscles are paralyzed, although in varying degrees. Kukolin is not especially hemolytic or trypanocidal.

Diversin.—Diversin increases reflex irritability, paralyzes the heart muscle directly, contracts peripheral vessels although large doses cause dilatation; reduces intestinal tonus; in small doses it excites uterine activity; large doses paralyze this muscle.

Lancet, London

2: 109-162 (July 18) 1925

*Etiology of Malignant New Growths. W. E. Gye.—p. 109.
*Microscopic Examination of Filtrable Viruses. J. E. Barnard.—p. 117.
Foundations of Vision. J. H. Parsons.—p. 123.
*Nasal Sinuses as Route of Infection in Lethargic Encephalitis. A. L. Yates and S. Barnes.—p. 130.
Bilateral Prepatellar Bursæ. A. Trevor Jones.—p. 132.

Etiology of Malignant New Growths.—Researches made on the origin of cancer lead Gye to regard cancer—using the term in its widest sense—as a specific disease caused by a virus (or growth of viruses). Under experimental conditions the virus alone is ineffective; a second specific factor, obtained from tumor extracts, ruptures the cell defences and enables the virus to infect. Under natural conditions, continued "irritation" of tissues sets up a state under which infection can occur. The connection between the specific factor of a tumor and an irritant remains to be investigated. Some of the relatively unimportant "irritants" are known, such as coal tar, paraffin oils, etc. The virus probably lives and multiplies in the cell and provokes the cell to continued multiplication.

Nature of Filtrable Viruses.—Barnard reviews previous work done on the microscopic study of filtrable viruses and describes his own work, especially on malignant tumors. He has seen particulate forms develop into spheroids and then the full life cycle ensues. His explanation of the life cycle is that the spheroids take the place of the living cell in providing conditions suitable for reproduction. In very young colonies of pleuropneumonia the particulate forms do apparently divide for the first few hours only, and are then immersed in some excretory material which reduces their surface tension. Soon, however, the spheroids develop on the outer edge of the colony and further reprodution takes place on those. A long series of comparative observations on cultures, all of which have ultimately been proved by animal experiments to be infective, has led to the conclusion that the same type of phenomenon, but on a smaller scale, is to be observed in the Rous fowl sarcoma, mouse sarcoma 37/S and latterly in human carcinoma, as can be seen in cultures of pleuropneumonia. In no essential point is there any difference, except that the cultures from malignant growths are slower in developing and do not produce such rich cultures. If the spheroids are an essential part of the life-history of these organisms then, owing to their low refractive index, they would produce evident cloudiness. The fluid cultures from malignant growths always remain clear; on solid mediums the colonies are so small that they required the use of a high-power objective to see them. The incubation period has not usually exceeded seven days, and examination of the cultures and similarly incubated uninoculated tubes has been made from three days onward. During that period the same life cycle has been observed in all cases as that seen in pleuropneumonia owing to the small size and lower visibility of the malignant growth viruses. Unless considerable care is exercised the spheroids may easily be confused with other spherical bodies occurring in most organic fluids. This can only be obviated by a careful preliminary study of uninoculated culture mediums.

Route of Infection in Encephalitis.—It is suggested by Yates and Barnes that the infection in encephalitis (and possibly other central nervous infections) is a symbiotic process; that in the first place the nasal mucous membrane is damaged by one of the catarrhal group of organisms, and that subsequently the virus of encephalitis is inhaled, passes through the damaged mucous membrane, and is absorbed into the brain via the perineural lymphatics.

Medical Journal of Australia, Sydney

1: 683-698 (June 27) 1925

Public Health and the Medical Practitioner. J. H. L. Cumpston.—p. 683.
Organic Factor in Mental Disease. C. Henry.—p. 686.
Occurrences of Distome Cercerie in Limme Brazieri (Smith). B. Bradley.—p. 690.
Cretinism. M. J. Plomley.—p. 690.
Pregnancy After Removal of Sixteen Fibromyomas. A. S. Vallack.—p. 691.

2: 1-28 (July 4) 1925

Myxedema: A Sequel. A. A. Lendon.—p. 1.
Myxedema. J. C. Verco.—p. 2.
Diathermy or Thermopenetration in Treatment of Disease. F. J. Stansfield.—p. 5.
·Education and Training of Cripples in United States. W. Vickers.—p. 9.
*Vaccine Treatment of Pertussis. R. Southby.—p. 11.

Vaccine Treatment of Pertussis.—Of 112 children suffering from pertussis Southby treated seventy-four with vaccine and thirty-eight without. Of the patients treated with vaccine there was definitely a greater proportion improved than in the group which had no vaccine. The course of illness was slightly shortened by the use of vaccine in the babies, but in older children there was practically no difference between the two groups. The vaccine should be given in large doses and as early as possible to obtain the optimum effect.

2: 29-62 (July 11) 1925

*Sacral Anesthesia. L. J. J. Nye and C. L. Paine.—p. 29.
Narcolocal Anesthesia in General Surgery. C. E. Corlette.—p. 32.
Medical Postgraduate Work in England and Scotland During 1924. T. H. R. Mathewson.—p. 42.

Sacral Anesthesia.—Nye and Paine are especially enthusiastic about caudal block which is an extremely simple procedure and has quite a large field of usefulness. They stress the necessity of a thorough knowledge of the anatomy of the parts involved, paying strict attention to asepsis and technic and particularly to gentle manipulation.

Bulletin de l'Académie de Médecine, Paris

94: 781-804 (July 15) 1925

*Insulin in Treatment of Ulcers. H. Chabanier et al.—p. 782.
Atropin Versus Whole Belladonna. Lemay and Jaloustre.—p. 784.
*Reflex Tests for Study of Vegetative System. Petzetakis.—p. 786.
The Microglia in Senile Plaques. Urechia and Elekes.—p. 795.

Combined General and Local Insulin Treatment of Leg Ulcer.—Chabanier, Lumière and Lebert treated with insulin ten nondiabetic patients, with varicose ulcers. Two daily injections, of 40 units each, were given, and dressings with insulin ointment were applied locally. Neither special diet nor rest were prescribed. In one of the patients, aged 61, with two ulcers of twenty years' standing, under the general and local insulin treatment, one ulcer healed in nineteen days, the other in thirty. Another patient, aged 51, with recurrent ulcer of the leg the last ten years, was cured in ten days, the ulcer completely healed. In a diabetic girl, treated during the last two years with large doses of insulin (80 units daily), an ulcer had developed on each sole in the last three months. Applications of insulin ointment were followed by total healing of the ulcers in less than a month.

Compression of Suborbital Nerve in Tests of the Vegetative System.—Petzetakis says that the stimulus from compression of this nerve is transmitted to the bulbar gray matter by Willis' nerve. The stimulus is then reflected to the vagus, sympathetic or the phrenic nerves, inducing simultaneous orbitocardiac, orbitopulmonary and orbitovascular reflexes, study of which throws light on the physiology of the vegetative nervous system, especially the condition of sympathicotonia and vagotonia.

Bulletins de la Société Médicale des Hôpitaux, Paris

49: 1007-1056 (July 3) 1925

*"Etiology of Rickets." A. Léri.—p. 1007.
*"Zoster and Varicella." Léri.—p. 1011.
*Respiratory Changes with Uremia. C. Achard.—p. 1012.
Case of "Hemicraniosis." Léri and Layani.—p. 1013.
Case of Recklinghausen's Osteitis. C. Achard and J. Thiers.—p. 1019.
Brain Tumor with Hyperalbuminosis. Pollet and Stieffel.—p. 1024.
Cyanosis with Insufficiency of Right Ventricle. Paisseau et al.—p. 1027.
Case of Pure Uremic Nephritis. Aubertin and Widiez.—p. 1039.
*Skin Eruption from Luminal. Caussade et al.—p. 1042.
Spontaneous Cure of Lung Abscess. Lemierre et al.—p. 1047.

Rickets Developing Where There Is Abundance of Sunlight.—Léri comments on the sequelae of rickets in adults, especially the pain in the bones; it is frequently ascribed to a neurosis, since there are no other manifestations of rickets at the time. Among 32 adults with marked deformities from rickets, 27 were agriculturists, 1 a sailor, and only 4 resided in a city. He recalls that in Nice and Milan, where there is plenty of sunlight but the hygienic conditions are defective, the number of children with rickets is high. In his 32 cases, 29 of the patients belonged to large families, each of them having an average of six brothers or sisters. Eleven of the patients were the last or next to the last child in the family. Lack of proper care and of nourishing food, which may have occurred in these circumstances, are probably responsible for rickets appearing regardless of an abundance of sunlight.

"Herpes Zoster and Chickenpox."—Léri treated a man, aged 51, suffering simultaneously with herpes zoster and a varicelloid eruption. A little girl, who visited the patient, developed chickenpox two weeks later.

Respiratory Disturbances with Uremia.—Achard reports a case of uremia in a young woman, one of whose kidneys had been removed on account of renal tuberculosis two years before. The respiration was of the Küssmaul type; the alkali reserve was very low (18.5) and the urea retention pronounced. In another case, the woman, aged 64, with renal sclerosis, presented coma, intermittent Cheyne-Stokes respiration, a slightly decreased alkali reserve and a marked retention of urea. He believes that the Cheyne-Stokes respiration does not depend on the acidosis, while the Küssmaul dyspnea is connected with it, even without associated ketosis.

Eruption, Resembling Measles, from Phenobarbital.—In Caussade, Tardieu and Lacapère's patient, aged 29, 0.1 gm. of luminal sodium, daily for eleven days, provoked an itching skin eruption, resembling that of measles. Evidently such cases may mislead the diagnosis, especially when the eruption is accompanied by a sore throat and fever. The toxic eruption occurred in 20 per cent. of the cases under therapeutic doses, and is very rare with acute poisoning. Acute or subacute poisoning from the barbituric acid group may be mistaken for epidemic encephalitis, general paresis or alcohol intoxication.

Comptes Rendus de la Société de Biologie, Paris

93: 73-147 (June 19) 1925. Partial Index

*The Liver with Trauma of the Spleen. Ravina and Jovin.—p. 75.
Estimation of Size of Objects. A. Strohl.—p. 76.
*Streptothrix Destroying Diphtheria Bacilli. L. Rosenthal.—p. 77.
Action of Lipoids on Cell Growth. L. E. Baker and A. Carrel.—p. 79.
Blood Serum and Resistance to Chicken Sarcoma. A. Carrel.—p. 85.
Acidosis and Coma in Pancreatectomized Dogs. E. Hédon.—p. 89.
Sulphur of Serum in Melanoderma. Loeper et al.—p. 95.
Conservation of Vitality of Tumor Cells. Dobrovolskaia-Zavadskaia.—p. 97.
*The Bacteriophage in Typhoid. P. Hauduroy.—p. 100.
Action of Antipyrin in Diabetics. Rathery and Kourilsky.—p. 102.
Fatigue and Muscle Degeneration. Apostolaki and Deriaud.—p. 105.
*Bacillus Sporogenes in Appendicitis. Weinberg. and Prévot.—p. 106.
*Determination of Venous Pressure. L. Payan and E. Giraud.—p. 109.
Infection of Oysters with Typhoid Bacillus. S. Costa et al.—p. 112.
*Vaccines from Bacilli Killed by Gold. H. Violle.—p. 115.
Oxygen and Carbon Dioxid in Apnea. Périot and Moutte.—p. 116.
*Vaccination Against Dysentery. Costa et al.—p. 122.
*Blood from Insulin-Treated Animals. Mauriac and Aubertin.—p. 130.
*Changes in the Thyroid from the Food. C. Magarinos Torres.—p. 135.
Leukemia and Splenectomy. E. de Souza Campos.—p. 143.

Lesions of Liver from Traumatic Autolysis of Spleen.—In their experiments on guinea-pigs and rabbits, Ravina and Jovin induced various lesions in the parenchyma of the spleen. Fifteen days after this, the liver showed signs of injury, principally characterized by lysis of the cellular mitochondria. The lesions appeared more pronounced in the center of the lobe than around the hilum. This may explain the degeneration or sclerosis of the liver, associated with chronic enlargement of the spleen. The proteoses and polypeptids, carried by the splenic vein, induce the lesions in the liver. Consequently it is obvious that splenectomy might exert a favorable influence on lesions in the liver of splenic origin.

Lysis of Diphtheria Bacilli by a Streptothrix.—Rosenthal has isolated a species of streptothrix which displays a lytic action on the diphtheria bacillus. This streptothrix seems to resemble the group described by Almquist and Gasperini.

Significance of Bacteriophage in Typhoid Fever.—Hauduroy observed three cases of typhoid with high fever, with rapid and sudden defervescence under the influence of an active bacteriophage which was manifest. He thinks that the bacteriophage which changed the positive culture into a negative in vitro was evidently responsible for the defervescence and subsequent recovery of the patient.

Species of Sporogenic Bacillus Discovered in Appendicitis.—Weinberg and Prévot found in an inflamed appendix a highly pathogenic species of *Bacillus sporogenes*. It was agglutinated by a sporogenes antiserum, and was refractory to the antiserum of the septic vibrio. As the fever still persisted after removal of the appendix, an injection of gas gangrene antiserum was given. It was followed by reduction of the fever.

Manometer for Estimation of the Venous Pressure.—Payan and Giraud describe the technic and apparatus (two arm bands and Claude's manometer) for determination of the venous pressure, without puncture of the vein. The measurement, they say, is almost as exact as with the puncture method.

Vaccines from Bacilli Killed by a Gold Salt.—Injections of dysentery bacilli, treated with gold chlorid, proved to be harmless in rabbits and mice. Paratyphoid bacilli, treated with gold chlorid, and given by the mouth, did not induce any disturbances in mice. The animals appeared immunized against the living bacilli given by mouth several days afterward, while the control animals died from ingestion of the living bacilli after six or eight days. The agglutination of the bacillus by the serum of animals was more pronounced with the typhoid bacillus than with the dysentery bacillus, both treated with gold chlorid. The bacteriolytic and antitoxic action of the gold may thus be utilized in vaccination by the digestive tract.

Vaccination by the Digestive Tract Against Dysentery.—Preventive immunization was used by Costa, Boyer and van Deinse in an epidemic on the Dutch ship *Trump* during its sojourn in French waters. All the 348 men were given by the mouth, for three days, a daily dose of 1 c.c. of the specific vaccine. Only one of the vaccinated developed a mild dysentery, while before the vaccination about fifty cases had occurred within six weeks.

Changes of Glycemia from Injections of Blood of Animals Treated with Insulin.—Mauriac and Aubertin assert that the injection of blood from an animal with hypoglycemia, under insulin, induced hyperglycemia in a rabbit. They are inclined to ascribe this reverse effect of the blood to the stimulation exerted on the glycemia center or on that of epinephrin secretion.

Effect of Food on Structure of the Thyroid.—Magarinos Torres noted that the structure of the thyroid gland changed in rats under the influence of certain foods. The changes were of a transient nature.

Paris Médical

55: 465 480 (May 23) 1925

*Inaugural Lecture of Neurologic Course. J. M. Charcot —p. 465.
*Symptomatology of Amyotrophic Lateral Sclerosis. Charcot —p. 470.
*Nervous Disturbance from Lightning Stroke. Charcot —p. 475.

57: 1-36 (July 4) 1925

Cardiovascular Diseases in 1925 P. Lereboullet and J. Heitz.—p. 1.
Intermittent Claudication Vaquez —p 17.
Myocardial Syndrome in Heart Insufficiency. Laubry and Walser.—p 21.
Treatment of Tuberculous Pericarditis. C Lian and G Corneau —p 26.
Radioscopy of Evolution of Dilatation of the Heart. E. Bordet —p. 30.

57: 37-52 (July 11) 1925

Ptosis and the Balance in the Abdomen Fraikin —p 37.
Epidemic of Cerebrospinal Meningitis J Dayras and J. Marie —p. 41.
Recurrent Cerebrospinal Meningitis L Izard —p 45.
Closure of Nostrils in Inspiration. E Feldstein.—p. 50.

The Charcot Lectures.—The *Paris médical* reproduces here in honor of the Charcot centennial three of the more famous lectures delivered by Charcot. He died in 1892.

Presse Médicale, Paris

33: 929 944 (July 11) 1925

Stationary Form of Tuberculous Sclerosis of Apex Bernard et al —p 929.
Preventive Vaccination in Surgery. E Blanco Acevedo —p. 932. See abstract in The Journal, July 11, p 151.
Parathyroid Extract and Calcemia R Turpin —p. 933.

33: 945 960 (July 15) 1925

*Reconstruction of Acetabulum Upper Brim Lance.—p. 945

Plastic Operation for Congenital Dislocation of the Hip Joint, Applicable at All Ages.—Lance gives an illustrated description of his technic, applied personally in eleven cases, including older children as well as adults. The pain and limp were caused by a defective hold for the femoral head, owing to the inadequate superior margin of the acetabulum. After the head of the femur had been reduced and the reduction maintained by forcible and extreme abduction, a graft, from 18 to 20 cm. long and 8 to 12 mm. wide, was taken from the tibia and cut in three pieces. These were implanted side by side in a recess made for them in the lower part of the condyle. The projecting ends served as a projecting shelf to supplement the defective upper brim of the socket. The recess in the condyle was made with a chisel prying the lower portion of the bone partly loose, thus leaving a triangular space. A cast was applied for a month. By this means the tendency to dislocation was corrected even in the nonreduced luxations. There is no reason to doubt that the cure, persisting for a year, will be definite.

Schweizerische medizinische Wochenschrift, Basel

55: 637 660 (July 9) 1925

*The Cytology of the Sputum E Propper —p. 637.
Actinomycosis After Injuries to the Head. A. Christ.—p. 643.
*Acrodynia E. Jenny —p. 645.
The *p*H Balance in the Blood A. Gigon —p 651.

The Cytology of the Sputum.—Alveolar epithelial cells are found in every pulmonary expectoration; they may phagocyte coal pigment and erythrocytes. Neutrophil leukocytes engulf bacteria, especially tubercle bacilli. Eosinophils are found not infrequently; their increase after tuberculin injections is a favorable prognostic sign. Propper believes that lymphocytes occur only in small number, and that the monocytes are derived from reticulo-endothelial cells; the latter are numerous in caseous pneumonia and in prognostically unfavorable cases of pulmonary tuberculosis.

Acrodynia.—Jenny reports four cases of this disease whose main characteristics are disturbance of sleep, lack of appetite and severe sweats. Secondary infections result in slow healing abscesses and ulcerations or even in gangrene. The extremities are edematous and cyanotic. The musculature is atrophic and hypotonic. Tremor, disturbances of the knee-jerk, paresthesias, tachycardia and hypertension are present. The duration is four to six months; death may occur through pneumonia. The etiology is not known. He queries whether the clinical picture is the same as pink disease.

Policlinico, Rome

32: *221-268 (May 15) 1925.* Surgical Section

**Roentgen-Ray Treatment of Lymphosarcoma* G. Cavina —p 221.
Three Cases of Malignant Lymphogranuloma. G C. Pratesi —p 244.
*Experimental Wounds of Biliary Passages. F Marinelli —p 249.
Histology of a Postherniotomy Band A. Miliani —p 265.

Roentgen-Ray Treatment of Sarcoma.—Cavina reports the unusual findings in a lymphosarcoma in the mediastinum and neck of an elderly woman, two weeks after deep roentgen irradiation. The patient had succumbed to pneumonia. The tumor showed numerous patches of necrosis of varying intensity, evidently proportional to the penetration of the rays. Between the cells there were strips of an amorphous, hyaline substance that looked as if a fluid had forced its way between the cells and had coagulated He compares this with similar cases on record, remarking that none seems to have been examined at such a brief interval after the exposure.

Wounds of the Biliary Passages.—Marinelli experimented in various ways on eighteen rabbits. The wounds in the gallbladder generally healed promptly and smoothly, but wounds in the common bile duct refused to heal. The direct cause of death was an acute hemorrhagic glomerular nephritis.

Prensa Médica Argentina, Buenos Aires

11: 1185-1220 (May 30) 1925

Research on the Sympathetic: Emotional Erythem, etc. M. R. Castex and A F Camauer —p 1185
*Eleven Cases of Tumors in the Heart. R. G. Cabred and D Mosto —p 1194
Frequency of Unsuspected Acquired Syphilis J. L Carrera —p. 1211.

Tumors in the Heart.—Cabred and Mosto comment on the rarity of the heart as a site for tumor. They mention that in 2,942 necropsies at the Johns Hopkins Hospital only ten cases of cancer in the heart were discovered, and only one was primary. At the Berlin institute, among 6,655 necropsies, only fifteen secondary carcinomas were found, and Aschoff encountered only one secondary carcinoma in 4,500 necropsies and Willingk nine in 4,547. In their own institute they discovered four secondary tumors at 300 necropsies during the last year, and there are ten specimens in the museum. Whether primary or secondary, the tumors usually escape detection during life as they induce no characteristic symptoms, the clinical picture blending with that of heart disease in general. Fibromas form the majority of tumors of the heart. Llambias interpreted one in the collection as a lymphosarcoma; the others were all metastases of tumors in the stomach, intestine or lung, or they were sarcomas. They give twenty-four illustrations of the eleven cases, and remark that notwithstanding the heart is so seldom the seat of a tumor, yet single metastasis in this organ is comparatively frequent.

12: 1 60 (June 10) 1925

Spontaneous Choreiform Attack of Pleural Origin. A J Raimondi and J Queirel —p 1
Functional Insufficiency of the Pancreas of Splenic Origin. M R. Castex —p 7
*Normal and Pathologic Lipochromemia C. Bonorino Udaondo et al —p 13
Relative Immunity in the Malaria of Birds S Mazza —p 17.

*Ascites from Cirrhosis of the Liver. N. Tagliavacche.—p. 19.
Intratracheal Injections of Iodized Oil as Aid in Diagnosis. G. Segura.—p. 24.
Amaurotic Family Idiocy; Necropsy. Marque and Camauer.—p. 41.

Ascites from Cirrhosis of the Liver.—Tagliavacche reports the cure in a case of extensive ascites, after failure of medical treatment, by Talma's intramural omentopexy, combined with drainage. He gives ten illustrations showing the technic and the persistence of the cure, four years to date, in his case.

Revista de Medicina y Cirugía, Caracas

8: 69-89 (Feb. 28) 1925

*Pseudomalaria and Pseudotuberculosis. F. de P. Rivas Maza.—p. 69.

False Malaria and False Tuberculosis.—Rivas Maza describes four cases to confirm his warning as to the danger of mistaking intestinal moniliasis or syphilis for tuberculosis or malaria. With a persisting fever, rebellious to quinin and to arsenic, without antecedents or physical signs of any importance, although laboratory tests may be negative, yet treatment with mercury or arsphenamin should be tentatively applied. If the signs suggest tuberculosis or intestinal dyspepsia, and the sputum and the blood findings are negative, while a fungus is found in the stools, the genus of the pathogenic monilia should be determined.

Revista Médica del Uruguay, Montevideo

28: 89-104 (March) 1925

*Acanthosis Nigricans. J. Brito Foresti and B. Vignale.—p. 89.
*Melancholia Asthma. A. Sicco.—p. 94.
Case of Acquired Mutism. V. Pérez.—p. 100.

Acanthosis Nigricans.—The case reported is the first to be published in Uruguay. Brito Foresti and Vignale state that scarcely more than a hundred cases have ever been published. Their patient was a man, aged 48, who died after a gastroenterostomy and secondary jejunostomy for cancer of the bowel. The pigmentation of the skin may have been connected with the cancer, by means of some lesion of the sympathetic nervous system.

Melancholia with Asthma.—The intense dyspnea was the principal manifestation, and almost the only one, of periodical attacks of a psychosis of the type of recurring melancholia. The woman had had a previous period of asthma, recurring for nine months, eleven years before. The present nontoxic dyspnea occurred with intervals of perfect health. No benefit was derived from treatment with ovarian extract, epinephrin, atropin, morphin, heart tonics and a fixation abscess, but improvement amounting to a cure occurred while she was being treated with progressive doses of belladonna (0.06 gm. daily).

Semana Médica, Buenos Aires

1: 1201-1256 (June 4) 1925

*Present Conception of Congestion of the Lung. T. Martini and C. A. Gourdy.—p. 1201.
Mikulicz's Disease. F. Bazán and R. Maggi.—p. 1214.
*Vaccine Therapy in Gastric Ulcer. R. Acosta.—p. 1218.
A Triplet Pregnancy. M. L. Pérez and A. Jakob.—p. 1220.
Syphilitic Paralysis of the Facial and Auditory Nerves. R. Becco.—p. 1224.
Impermeable Stenosis of the Urethra. J. Salleras.—p. 1226.
Treatment of Toxic Rheumatism. S. Libarona Brian.—p. 1229.
Action of "Mandelin Reagent" on Strychnin. L. Rossi.—p. 1233.
Insulin Treatment of Uncontrollable Vomiting of Pregnancy. J. J. Darnet.—p. 1235.
Warning Against Quinin for Pregnant Women. A. Casotto.—p. 1237.

Cortical Pleuritis.—Martini and Gourdy remark that in adults, cortical pleuritis is responsible for the most frequent symptoms (apart from tuberculosis) of acute inflammatory processes in the lower air passages. True congestion of the lungs is very rare. The great majority of these cases of cortical pleuritis are of tuberculous origin, and these are generally located at the apex and interlobar regions. The nontuberculous processes are more liable to be located at the base. The tuberculous forms are more frequent in the young, especially in young women. They add that negative laboratory findings do not exclude a tuberculous origin. The immediate prognosis is good, but the ultimate outcome depends on the etiology. Treatment should be symptomatic.

Vaccine Therapy in Gastric Ulcer.—Acosta reports five cases which demonstrated an unmistakable connection between injection of a polyvalent vaccine and the disappearance of the pain with gastric ulcers. This relief may be due to the protein action.

Deutsche medizinische Wochenschrift, Berlin

51: 1139-1180 (July 10) 1925

How to Stop Hemorrhages with Clamps After Parturition. M. Henkel.—p. 1139.
The Carotid Branch of the Glossopharyngeal Nerve. H. E. Hering.—p. 1140.
A Rough Determination of the Basal Metabolism. Arnoldi.—p. 1141.
Simple Apparatus for Determination of Basal Metabolism Rate. H. Herxheimer.—p. 1143.
*Exogenous Reinfection in Tuberculosis. J. W. Samson.—p. 1144.
The Psychology of the Tuberculous Patient. E. Stern.—p. 1146.
Metastasis and Spontoneous Cure in Cancer of the Testis. Prym.—p. 1149.
A Fatal Pericardial Cyst. H. Nossen.—p. 1150.
Injuries to the Bladder in Opening Douglas Abscesses. Roedelius.—p. 1151.
Epidemic Alopecia. E. Hofmann and H. Martin.—p. 1153.
*Alastrim and Variola. W. H. Hofmann.—p. 1154.
Modification of Bouquet-Nègre' Complement Fixation. Berliner.—p. 1156.
Complement Fixation in Echinococcal Infection. L. Jaffé.—p. 1156.
Choice of the Donor in Blood Transfusions. A. Mandelstamm.—p. 1157.
A Sanatorium for Surgical Tuberculosis. M. Borchardt.—p. 1158.
Recovery Under Convalescents' Serum in a Case of Epidemic Encephalitis. F. W. Bremer.—p. 1159.
Recovery in Case of Landry's Paralysis. J. Donath.—p. 1160.
Tuberculosis and Cyclic Insanity. W. Freund.—p. 1160.
Poisoning with Columbine Flowers. Hirsch-Mamroth.—p. 1161.
Healing of Incipient Cancer of the Uterus. N. Flaischlen.—p. 1161.
A Little Help in Catheterization. E. Eisner.—p. 1161.
Recent Progress in Obstetrics. F. Geppert.—p. 1162. Cont'n.
Proposed Legislation on Venereal Diseases. E. Galewsky.—p. 1164.

Exogenous Reinfection in Pulmonary Tuberculosis.—Samson analyzed the opportunities for infections in 1,300 patients and found that in 35.3 per cent. coresidence with tuberculous persons was recorded, whereas this was definitely denied in only 19.2 per cent. The disease is more frequent in persons who have lived with several tuberculous patients. Samson believes that these and some additional findings speak strongly in favor of the important pathogenic rôle of exogenous reinfection or superinfection in adults.

Alastrim and Variola.—Hoffmann believes that alastrim from an epidemiologic point of view should be regarded as smallpox. Clinically, alastrim resembles very much smallpox, though it tends more to milder forms. Its etiology is not known, and it may be the same as for variola. Smallpox vaccination immunizes against alastrim.

Klinische Wochenschrift, Berlin

4: 1337-1384 (July 9) 1925

*Stimulation and Paralyzing as Physical-Chemical Processes. R. Höber.—p. 1337.
The Hormone of the Pancreas. H. Langecker and W. Wiechowski.—p. 1339.
Dysoxidative Carbonuria. A. Bickel and Kauffmann-Cosla.—p. 1343.
Fat-Soluble Compounds of Bismuth. Herrmann and Nathan.—p. 1345. Conc'n.
Congenital Syphilis and Endocrine Secretion. Buschke and Gumpert.—p. 1347.
The Paradoxic Sensitiveness to Epinephrin. Szondi.—p. 1349.
The Double-Colored Mastix Reaction. von Thurzó and Kulcsár.—p. 1352.
*Digitalis by the Rectum. S. G. Zondek.—p. 1353.
Biology of the Recurrens Spirochete. Kroó.—p. 1355.
Treatment of Roentgen-Ray Ulcers. F. Veiel.—p. 1356.
Electrophysiologic Studies of Fatigue. W. Strauss.—p. 1358.
Muscular Activity of the Spleen Capsule. Loewe and Faure.—p. 1358.
Therapy of Cerebrospinal Syphilis. R. Henneberg.—p. 1359.

Physicochemical Points of View in Physiology.—Each stimulation of the tissues of the skin produces an increased permeability of the skin for ions. Höber shows with many examples that it is a universal law that stimuli of any kind lead to an increased permeability of cell membranes. It is evident that this phenomenon is of prime importance in the nutrition of cells. These alterations in the permeability are due to changes in the electrolyte concentration in the cell membranes. In narcosis, the cell membranes are rendered less permeable by the action of the narcotic; this closes the cell for assimilatory and fermentative functions.

Digitalis by the Rectum.—Zondek gives during the first few days two or three suppositories, each containing 0.075 gm. of digitalis leaves: then one suppository daily up to a total of twenty. The resorption is at least as good as in oral administration. In stasis in the portal system, the rectal administration is more successful.

4: 1385-1432 (July 16) 1925

Emotion and Logic in Homeopathy. W. Heubner.—p. 1385. Cont'd.
*The Ovarian Hormone. B. Zondek and S. Aschheim.—p. 1388.
Sensory Nerves of Blood Vessels. Schilf and Stahl.—p. 1390.
*The Graham Gallbladder Test. P. Kaznelson and F. Reimann.—p. 1390.
Different Types of Colon Bacilli in Pyelitis. Bitter and Gundel.—p. 1395.
*Exclusive Radium Therapy in Cancers of the Cervix. F. Voltz.—p. 1396.
The Action of Caffein. Handovsky and Uhlenbruck.—p. 1401.
Kahn's Serologic Test for Cancer. Nelken and Glücksmann.—p. 1404.
Retention Tube in Examination of the Secretory Function of the Stomach. J. Vándorfy.—p. 1405.
Libido Producing Substances in Female Blood. S. Loewe.—p. 1407.
Localization of Central Respiratory Disturbances. Spiegel and Enghoff. —p. 1407.
The Treatment of Gout. K. Harpuder.—p. 1408.
Coué's Method. C. Birnbaum.—p. 1410.
Abderhalden's Reaction. P. Hirsch.—p. 1412. Begun, p. 1365.

The Ovarian Hormone.—The cytology of the vaginal secre- on in the white mouse is closely dependent on the physio- ogic cycle of the ovary, as also the hormone action of mplanted material in the castrated animal. Zondek and schheim examined on this basis the action of different rgans on the sexual cycle. Glandular organs and endo- rines did not influence the sexual periods. Ovarian sub- tance provoked the cycle in a few days. Only the wall of nature or nearly mature follicles or their liquid content is ctive. The only other organ which contains the active rinciple is the placenta.

Roentgen-Ray Examination of the Gallbladder.—Kaznelson and Reimann found that the Graham-Cole method for rendering the gallbladder visible in roentgen-ray pictures gives very valuable diagnostic results. A normal gallbladder will always be filled with the tetrabromphenolphthalein; an empty gallbladder is always diseased. The reaction of the gallbladder after peptone or pituitary extract is undoubtedly a contraction of its muscular coat.

Exclusive Radium Therapy in Cancer.—Voltz publishes a statistical presentation of the results of radium treatment in cancers of the uterine cervix in Döderlein's clinic. From 1912 to 1918, 755 patients were treated; 110 were operable cases, with 43.6 per cent. cures; 130 were borderline cases with 22 per cent. cures; 340 were inoperable cases with 6.7 per cent. cures; 169 were hopeless cases, with one cure. The figures for 1918 and 1919, with a total of 272 treated patients, are essentially the same. No case is listed in these statistics unless five years of observation have elapsed. The technic of treatment and selection of patients is discussed, and a comparison with operative results is made.

Abderhalden's Reaction.—Hirsch discusses his modification of the original test for the diagnosis of pregnancy by means of interfereometric quantitative determinations of the protein split products. He believes that the results have been very satisfactory. Most experiences have been gained in veterinary work.

Medizinische Klinik, Berlin

21: 991-1032 (July 3) 1925

Adnexitis. M. Henkel. —p. 991.
The Inferior Depressor Nerve of the Aorta. A. Tschermak.—p. 995.
Mesenteric Thrombophlebitis in Two Boys After Appendicitis. O. M. Chiari.—p. 998.
Insulin. O. A. Rösler.—p. 1000.
*Action of Roentgen Rays on Intestinal Tract. R. Lenk.—p. 1001.
*The Stomach in Cigaret Smokers. E. Adler.—p. 1005.
Chronic Gastritis. R. Korbsch.—p. 1006. Conc'n.
Injection of Lobelia into the Cisterna. Janossy.—p. 1009.
Induced Pituitary Hyperglycemia in Infants. W. Stern.—p. 1011.
Case of Postmortal Formation of Hematin. Winternitz and Haurowitz. —p. 1012.
Therapeutic Value of Lipoids: Experimental. J. Magat et al.—p. 1013.
Postoperative Pulmonary Complications. C. Lagemann.—p. 1014.
Occupational Injury as Factor in Sclerodermia. Schnizer.—p. 1014.
Psychology in General Practice. H. Fendel.—p. 1015. Cont'n.
Recent Progress in Practical Surgery. Kroll.—p. 1018. Conc'n. p. 1058.

Roentgen-Ray Therapy in Peptic Ulcers.—Lenk believes that roentgen irradiation has a beneficial effect in ulcers because it relieves spastic conditions locally. He emphasizes to use frequent and small doses of the rays.

The Stomach of Cigaret Smokers.—Adler believes that heavy cigaret smokers not infrequently develop symptoms which resemble closely those of peptic ulcers. The acidity, however, is usually normal or only slightly increased. The peristalsis is usually increased and spasmodic. Therapeutically, it is most always sufficient to make the patient stop smoking, at least before the midday meal.

Münchener medizinische Wochenschrift, Munich

72: 1101-1140 (July 3) 1925

Ophthalmoscopy in Red-Free Light. A. Vogt.—p. 1101.
Colloid Chemical Studies in Paroxysmal Hemoglobinuria. F. V. von Hahn.—p. 1104.
*Treatment of Chronic Phlebitis. Linser.—p. 1105.
Treatment with the Patient's Own Blood. C. Rhode.—p. 1107.
*Sex Frequency of Congenital Syphilis. Bratusch-Marrain.—p. 1109.
Radical Phrenicotomy. O. Goetze.—p. 1110.
History of the Stethoscope. A. Kühn.—p. 1113.
Pathogenesis of Pernicious Anemia. K. Noodt.—p. 1114.
*Action of Insulin. E. F. Müller et al.—p. 1114. Conc'n.
Orthopedic Arch Supporters. G. Hohmann.—p. 1118.
Physicians, etc., in Württemberg Legislature. Hölscher.—p. 1121.

Artificial Thrombi in Phlebitis.—For many years very favorable reports have been published about the treatment of varicose veins with local intravenous injections of 0.5 to 1 per cent. mercuric chlorid or 10 to 15 per cent. sodium chlorid which results in quick formation of solid thrombi, firmly adherent to the venous wall. Linser, the author of this method, advocates now the same procedure for the treatment of chronic phlebitis. This treatment should not be used in acute cases.

Congenital Syphilis.—Bratusch-Marrain has examined the records of 435 cases and found that about 60 per cent. of the patients with congenital syphilis are males.

Insulin Action.—E. F. Müller and H. J. and R. P. Wiener have found in careful experimental work that insulin works not only as the pancreatic hormone, but that it has a stimulating action on the parasympathetic nerves, which results in an increase of glycogen formation in the liver. This action is particularly pronounced after intracutaneous injections. Müller has shown in previous work that very powerful parasympathetic stimuli may be sent from the skin. After intracutaneous insulin injection, the first response, before any insulin is resorbed, is the parasympathetic stimulation of the liver; after the resorption, which is delayed in intradermal injection, the well known hormone action takes place. The first action can be depressed by atropin which paralyzes the parasympathetic fibers. It is much less pronounced in subcutaneous injection, and it is not present at all after intravenous administration. The action of insulin on the nervous system, in contradistinction to its action as a hormone, is very little dependent on the dosage.

72: 1189-1230 (July 17) 1925

Pediatrics as a Specialty. A. Schlossmann.—p. 1189.
*Hutchinson's Teeth. Buschke and Langer.—p. 1191.
Trichinosis. G. B. Gruber.—p. 1193.
*Rectal Versus Vaginal Examination by Midwives. R. Demme.—p. 1198.
*Appendicitis and Ovarian Hemorrhages. Korach.—p. 1199.
"Agranulocytosis." R. Bantz.—p. 1200.
The Milk of Syphilitic Women. E. Martin.—p. 1205.
A Micromethod for Determination of Blood Sugar. Blumenthal.—p. 1205.
Fractures of the Patella and Femur. F. Lange.—p. 1205.
Medical Societies for Physical Exercise. Schnell.—p. 1207.
The Danish Sanocrysin Treatment of Tuberculosis. Wychgram.—p. 1209.

Pathogenesis and Diagnosis of Hutchinson's Teeth.—Buschke and Langer have found in patients with congenital syphilis, and with typical Hutchinson's teeth, that the premaxillary bone was hypoplastic and, therefore, the gums just above the teeth were concave. A similar process is found on the symphysis of the mandible. These findings lead the authors to believe that the peculiar shape of the incisor teeth in congenital syphilis is primarily due to the hypoplastic development of their bony matrix. The concave gum is diagnostically very significant, and does not occur in rickets.

Rectal Examinations in the Practice of Midwives.—Demme makes a plea for the more frequent—or preferably exclusive—use of the rectal method for obstetrical examinations by midwives. The danger of infections would be greatly diminished, and the conditions that a midwife needs to know for her actions can be fully ascertained by external and rectal exploration.

Appendicitis and Ovarian Hemorrhages.—Korach believes that it is frequently not possible to differentiate between appendicitis and a follicular hemorrhage from a corpus luteum. He advises operation in case of doubt.

Wiener Archiv für innere Medizin, Vienna

10: 467-632 (June 15) 1925. Dedicated to Jaksch-Wartenhorst

Length of Muscle Fibers in Contracted Muscles. R. Fick.—p. 471.
Induced Heterotopic Heart Pulsation. H. E. Hering.—p. 497.
*Kidney Function in Severe Diabetes. O. Klein.—p. 507.
*Babinski's Reflex. J. Löwy.—p. 543.
*Sugar and the Secretion of Hydrochloric Acid. P. Mahler.—p. 549.
Sequelae of Epidemic Encephalitis. J. Mendl.—p. 559.
Discoloration of Skin and Nails by Vegetable Products. K. Pichler.—p. 569.
Pluriglandular Affections. H. Pribram.—p. 575.
The Circulation in Hemiplegia. H. Rotky and O. Klein.—p. 585.
Case of Pyramidon Poisoning. H. Rotky.—p. 595.
Paroxysmal Tachycardia. A. Selig.—p. 603.
Abdominal Plethora. K. Walko.—p. 609.

Renal Function in Severe Diabetes.—In severe diabetes the concentrating power of the kidney is not impaired; polyuria is present even in periods without intake of fluids. The diluting power is unimpaired. There may be found a delay or decrease of water secretion. Sodium chlorid may be retained in severe cases; this occurs especially when, simultaneously with sodium chlorid, glucose or urea are given in large amounts. The diabetic kidney does not seem to be able to secrete large amounts of different substances at the same time. Klein suggests that this relative insufficiency may account for the increased threshold value for glucose in cases of long standing.

The Babinski Reflex.—Löwy found that in some cases with a negative Babinski it is possible to produce dorsal flexion of the big toe by testing simultaneously for the Babinski and the Oppenheim reflex. This condition indicates a less complete lesion in the pyramids than a positive individual reflex.

Sugar and Gastric Secretion.—Mahler found that a 5 per cent. sugar solution stimulated secretion in all persons who reacted normally to ingested food. In patients with hyperacidity, a considerable increase of mucin is simultaneously observed. A 20 per cent. sugar solution decreases the secretion. Different types of sugar influence the gastric secretion to a different degree; this difference is not dependent on the degree of their sweetness.

Wiener klinische Wochenschrift, Vienna

38: 777-802 (July 9) 1925

Diverticula of the Esophagus. G. Lotheissen.—p. 777.
*Hypophysis and Metabolism. P. Liebesny.—p. 780.
*Syphilitic Fever. F. Freund.—p. 786.
A Convenient Set of Hegar Bougies. R. Joachimovits.—p. 788.
The Sugar Value in Food. O. Porges.—p. 788.
Vaccination Against Rabies. B. Busson.—p. 789.
Indications for Tonsillectomy in Internal Disease.—K. Reitter. Supplement.—pp. 1-14.

The Pituitary and Basal Metabolism.—The effect of deficient and of excessive function of the hypophysis on the basal metabolism and on the specific dynamic influence of ingested food is not as clear-cut as in the case of the thyroid, because the hypophysis has two different internal secretions with partially antagonistic action. Liebesny found that in patients with acromegaly and with hypogenitalism, the basal metabolic rate and the specific dynamic effect were increased, but not in every case. In two cases of hypophyseal dwarfism, and in six cases of tumors of the hypophysis, the specific dynamic value was below normal.

Febrile Syphilis.—Freund states that during the last few years the occurrence of high and protracted fever in the first and second stage of syphilis is more frequent. These cases resemble more the acute exanthematic diseases. Similar cases were apparently observed frequently during the fifteenth and sixteenth centuries.

Zeitschrift für klinische Medizin, Berlin

101: 475-746 (June 24) 1925

Blood Pressure in Infectious Diseases. F. v. Bormann.—p. 475.
The Leukocytes After Recurrens Treatment in General Paralysis. Sagel.—p. 499.
The Hemogram. B. Ziemilski.—p. 505.
Action of Tuberculins by the Mouth. Pockels.—p. 518.
*Castration and Production of Antibodies. Weyrauch.—p. 524.
*Camphor and Bile Formation. H. Schreiber and F. Herrmann.—p. 529.
Congenital Hematoporphyria in Adult Man. W. Robitschek.—p. 540.
*Pathogenic Factors in Essential Hypertension. K. Westphal.—p. 545; p. 558; p. 566; p. 584.
Interferometric Studies of the Blood Serum. L. Beltz and E. Kaufmann.—p. 671.
Catarrhal Icterus and Icterus After Arsphenamin. H. Ruge.—p. 684.

Castration and Antibody Production.—Weyrauch did not find any difference in the production of antibodies (hemolysins, agglutinins and precipitins) between a group of thirty-three castrated male rabbits and thirty-three normal male rabbits.

Camphor and Bile Secretion.—Schreiber and Herrmann found that oil of peppermint increases the bile secretion; oil of thyme does not. A 50 per cent. solution of camphor in ethereal oils produces a paralysis of the bile ducts for a long time; a 20 per cent. solution in oil of peppermint produces a paralysis of the bile ducts only for a short time, which is followed by a noticeable polycholia. All these examinations were made by the use of the duodenal tube.

Experimental and Clinical Studies in Essential Hypertensions.—A great many correlated factors enter into the pathogenic mechanism of essential hypertension. Westphal centered his interest chiefly on the rôle of the cholesterol, and found that a hypercholesteremia was present in 71 per cent. of patients with essential hypertension; the increase of blood-cholesterol is not found in conditions of decompensation (edemas, cachexia). But cholesterol is not the exclusive cause of essential hypertension; protein cleavage-products may cause the same condition. In nephroses, pregnancy and icterus Westphal showed that in spite of a hypercholesteremia the arterial wall does not resorb cholesterol and no hypertension results. Primary hypotension and secondary hypotension in infectious diseases are frequently associated with a decrease in the blood cholesterol. Whether hypercholesteremia leads to hypertension or not depends much on the function of the thyroid and the sexual glands, on the autonomous nervous system, on the ion balance in the blood, and on the condition of the heart. Westphal attempted successfully to use his theoretical conclusions as a basis for therapeutic measures. But further experiences are necessary to confirm the validity of his very interesting hypothesis.

Zentralblatt für Chirurgie, Leipzig

52: 1457-1520 (July 4) 1925

Collapse in Local Anesthesia; Two Cases. F. Härtel.—p. 1458.
*Cholecystogastrostomy in Peptic Ulcers. A. Frenkel.—p. 1459.
Abscess Caused by a Fishbone in the Liver. E. Wilheim.—p. 1464.
Peritonitis Following Migrating Erysipelas. G. Karehnke.—p. 1466.
Ganglions in the Nerve Trunk. A. Zwetowa-Chwedkewicz.—p. 1468.
Surgical Treatment of Tuberculosis of the Shoulder. Schulhof.—p. 1470.
Multiple Malignant Tumors. F. Honigmann.—p. 1472.

52: 1521-1584 (July 11) 1925

Gas Gangrene of Gallbladder in Elderly Man. Kirchmayr.—p. 1522.
Torsion of Gallbladder in Two Women. Fischer.—p. 1527.
Pericranial Sinus in Abnormal Position. Andrassy.—p. 1532.
Technic for Roentgenography of Bronchi. K. Nather and M. Sgalitzer.—p. 1534.
Bronchography by Means of a Laryngeal Catheter. Beck and Sgalitzer.—p. 1537.
Internal Hernias. A. Shapiro.—p. 1541.
Technic of Osteotomy. T. Fohl.—p. 1547.

Anastomosis Between Gallbladder and Stomach in Stomach Ulcer.—Frenkel used this method of treatment in twenty-one cases of peptic ulcer of the stomach or duodenum, with complete success in twenty patients, and without beneficial results in one patient. After the operation, a decrease of the total acidity, and especially of the free hydrochloric acid, is found which is considered to be the therapeutic factor.

Zentralblatt für Gynäkologie, Leipzig

49: 1457-1520 (July 4) 1925

Surface Tension in Cancer and Pregnancy. L. Lederer.—p. 1458.
Surgery of Tubal Pregnancy. M. Turolt.—p. 1467.
*Surgery of Adnexitis. M. Mannheim.—p. 1471.
Kielland's Forceps. F. Heinlein.—p. 1485.
Kielland's Forceps in Breech Presentation. K. Fink.—p. 1490.
Statistics on Cancer of the Uterus. H. Schoog.—p. 1492.
The Placenta in Folklore Therapeutics. A. W. Chochlow.—p. 1497.

49: 1521-1584 (July 11) 1925

Cesarean Section in Edema of the Vulva. F. Skutsch.—p. 1546.
Two Cases of Multiple Ovarian Teratoma. Neumann.—p. 1549.
Pulmonary Emboli and Trendelenburg's Operation. F. Wermbter.—p. 1560.
Lipoids in the Fetal and Maternal Blood. K. Hellmuth.—p. 1566.
Cystic Adenoma of Labium Majus. M. Seidler.—p. 1569.
Hemangiomas in the New-Born. W. Holz.—p. 1575.

Surgical Treatment of Salpingo-Oophoritis.—Mannheim analyzes the results of surgical and conservative treatment in 294 women with adnexitis. His conclusions are as follows: With radical operation, the percentage of cures is greater, but the average length of time spent in the hospital is longer. With conservative treatment, the number of secondary operations is greater. The mortality rate and the frequency of complications in both groups are approximately the same. In the long run the results are better with radical operation.

Časopís lékařů českých, Prague

64: 913-948 (June 13) 1925

Diagnostic Failures in Brain Tumors. A. Heveroch.—p. 913.
*Pathogenesis of Hemolytic Jaundice. E. Zeman.—p. 916.
Osteomyelitis of Maxilla in Infants. V. Tesař.—p. 921.
*Progress in Treatment of Puerperal Fever. J. Saidl.—p. 930. Conc'n.
*Accessibility of Esophagus in Gastrotomy. J. Mourek.—p. 934.
*Progressive Muscular Atrophy After Typhoid. L. Hybner.—p. 935.

Pathogenesis of Hemolytic Jaundice.—Zeman blocked the endothelial system in rabbits by cautious injections of colloidal iron and silver. Practically no hemolysin could be produced in the animals treated with colloidal silver. He attributes to the reticulo-endothelial system the production of hemolysins, which may also be responsible for the hemolytic jaundice.

Progress in Treatment of Puerperal Fever.—Saidl does not believe that Ruge-Philipp's method gives a reliable prognosis. Hemograms are preferable and serve also for checking up on the action of various preparations. Autovaccines gave the best results. Stimulation of the heart is essential for success.

Accessibility of Esophagus in Gastrotomy.—Mourek reports a case of removal of a foreign body from the esophagus by gastrotomy. Simultaneous introduction into the esophagus of a tube filled with contrast material proved that the organ was accessible for almost 11 centimeters.

Progressive Muscular Atrophy After Typhoid.—Hybner reports the clinical history of two adolescent brothers. A progressive atrophy of muscles developed in both after typhoid fever.

64: 949-984 (June 20) 1925

Political Fear. V. Vondráček.—p. 949.
Glanders. E. Zeman and V. Tomášek.—p. 952. Conc'n, p. 1032.
*Diagnostic Failures in Brain Tumors. A. Heveroch.—p. 955. Conc'n.
Pancreatic Calculi. J. Charvát and K. Felklová.—p. 967.

Diagnostic Failures in Brain Tumors.—Heveroch emphasizes the value of publishing diagnostic failures. A diagnostic success does not always mean that we draw the correct conclusions. There is no doubt that we made a mistake in a diagnostic failure. One of his patients was an old woman with all the symptoms of arteriosclerosis and senile dementia. Necropsy revealed a large endothelioma of the dura, compressing the base of the right frontal lobe. Clinical tests revealed her inability to let go a hand she was grasping, or to drop an object. Yet this correct observation did not lead to further investigation. Another case was diagnosed for five years as alcoholic epilepsy. The young man had a diffuse glioma of the right hemisphere. A status epilepticus such as he presented does not occur in alcoholic epilepsy. Nevertheless the diagnosis was persisted in until he died.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

1: 2929-3032 (June 27) 1925

*Vaccine Therapy for Complications of Gonorrhea. A. van der Zijl and W. Schijvenschuurder.—p. 2930.
*Diffuse Glioma of the Pia. C. de Lange and M. C. M. Smid.—p. 2944.
*The Tuberculin Skin Reaction. H. Toxopeus.—p. 2953.
*Pink Disease. A. van Westrienen.—p. 2964.
Connection Between Infectious Sore Throat and Pyelitis. C. Schaap.—p. 2966.

Vaccine Therapy for Complications of Gonorrhea.—Van der Zijl and Schijvenschuurder report twenty-three cases of epididymitis, or other acute complications of gonorrhea in men, treated with antigonococcus vaccine by the vein. No benefit was realized in the old prostatitis cases, and very little in the urethritis cases, but the effect was surprisingly good in the one acute arthritis case and always in acute prostatitis. They advise to begin with a small dose at first. The effects seemed to be better when the patients stayed in bed.

Diffuse Glioma of the Pia.—De Lange and Smid diagnosed at first traumatic spondylitis in the neck region in a 2 year old boy. Treatment on this basis had no results, and certain symptoms suggested meningitis, but the blood did not indicate an inflammatory process. Direct inspection of the brain showed what seemed to be a chronic hyperplastic meningitis, but the microscope at necropsy revealed diffuse glioma of the pia. They compare the case with the two similar ones on record.

The Tuberculin Skin Reaction.—Toxopeus' experiments and arguments apparently sustain his assertion that the Pirquet skin tuberculin reaction is merely induced by the bacterial protein. It is thus not a reliable sign of the presence of tuberculosis.

Pink Disease.—Van Westrienen has encountered three cases at Rotterdam in children under 3. Improvement followed correction of the avitaminosis evident in all; infection seemed secondary. One infant was permanently cured in less than two months under vitamin treatment (tomato juice). In one of the families there seemed to be a familial predisposition to vasomotor disturbances.

2: 1-144 (July 4) 1925

Training in Preventive Medicine. G. van Rijnberk.—p. 2.
Immunization Against Diphtheria. II. H. Aldershoff.—p. 6.
Age at First Infection with Tuberculosis. R. Korteweg.—p. 18.
*Extraperitoneal Access to Kidney and Ureter from the Front. E. Hustinx.—p. 28.
*Anuria from Thrombosis of Renal Artery. Oudendal and Hulst.—p. 41.
Ancient Magic Remedies. VII. Bezoars. M. A. van Andel.—p. 47.
Early Presidents of the Utrecht Medical College. A. J. van der Weijde.—p. 59.

Extraperitoneal Access to the Kidney from the Front.—Hustinx incises from the pubis to 3-4 cm. from the navel, on the median line, and then toward the side on a line reaching to the cartilage of the ninth rib. Through this he draws the peritoneum up out of the way, and in his fifteen cases the peritoneum tore only once, and this was easily sutured. The only difficult step is the closure of the posterior wall of the sheath of the rectus in men. In women who have borne children it is not always necessary to open the sheath. Ample access is thus given to the kidney and the entire ureter, with exceptionally slight interference with the normal anatomic conditions.

Fatal Anuria from Bilateral Thrombosis of Renal Artery.—The clinical picture was so puzzling in the woman, aged 67, that poisoning was suspected. Necropsy revealed thrombosis in the abdominal aorta, from an arteriosclerotic process. The thrombosis had spread into the renal arteries, with almost complete necrosis of the kidneys as the blood was thus shut off.

Svenska Läraresällskapets Handlingar, Stockholm

51: 61-158 (June 30) 1925. In German

Research on the Suprarenals: The Regulation of the Blood Sugar in Epinephrectomized Animals. C. G. Sundberg.—p. 61.

Ugeskrift for Læger, Copenhagen

87: 493-516 (May 21) 1925

Are the Danish People Overfed or Underfed? M. Hindhede.—p. 493.
Cisterna Puncture in Epidemic Cerebrospinal Meningitis. F. Wulff.—p. 500.
Malaria Treatment in Neurosyphilis. S. Lomholt and Johannes Nørvig.—p. 504.
A Danish Insulin Preparation. A. Vangsted.—p. 506.
Action of Gold Salts in Experimental Tuberculosis. H. Møllgaard.—p. 507.

87: 561-576 (June 18) 1925

Ileus from Calculus in Intestine. S. Hansen.—p. 561.
Brain Tumor Versus Hysteria? C. Gram.—p. 563.
"Gold Salts in Experimental Tuberculosis." O. Bang.—p. 566.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 85, No. 10 Chicago, Illinois September 5, 1925

UROLOGIC PROBLEMS OF THE GENERAL PRACTITIONER, SURGEON AND INTERNIST *

ROBERT V. DAY, M.D.

LOS ANGELES

KIDNEY FUNCTION

One not infrequently encounters frank complaint by the surgeon and others that the phenolsulphonephthalein test has, in their experience, proved unreliable and misleading. Almost always the error has been due to inaccurate collection of the urine to be tested for its dye content. Unquestionably, the most valuable and reliable single method of determining kidney function is by the employment of phenolsulphonephthalein. If the output is definitely below normal, it should be supplemented by data on the nonprotein nitrogen content of the blood—either blood urea or total nonprotein nitrogen—and often creatinin. If the appearance time and percentage output of phenolsulphonephthalein are normal, there will be no increase in the total nonprotein nitrogen in the blood. On the other hand, the blood chemistry findings may be quite within normal limits and yet the phenolsulphonephthalein output be markedly lowered, usually for the reason that the protein intake is small, and with hypertension and polyuria the nitrogen waste is amply taken care of. If a reliable laboratory report shows a normal phenolsulphonephthalein output, it may be taken as one of the most nearly infallible tests of any with which the practitioner deals. If markedly below normal, however, the test should be repeated to eliminate error due to faulty collection or more rarely because of reflex inhibition from pain, shock or psychic influence. Usually two half hour periods for collection are preferable to two one hour periods in that it ordinarily supplies better information besides saving time. Normally, the percentage output following appearance is greater during the first fifteen minutes than the second fifteen minutes, and greater during the first thirty minutes than the second thirty minutes. Supposing, then, using the almost traditional one hour periods, a prostatic patient had an output of from 40 to 45 per cent. during the first hour. On the face of it, this would appear fairly good; but if half or nearly half of this output occurred during the second thirty minutes of the first hour, one would know that the kidneys were sluggish and there was still a considerable operative risk from the standpoint of kidney function. However, if the percentage output is from 40 to 65 per cent. during the first half hour following the appearance time after intravenous injection (depending on the character of the case), one may dispense with further consideration of total function.

To insure accuracy, a catheter is inserted and adjusted so that the eye is well within the bladder and the urine finally comes drop by drop into a solution of sodium bicarbonate and not the dangerous and caustic sodium hydroxid. In this way the appearance time of the dye does not depend on the ability of the patient to urinate every five minutes or so, which usually is an impossible accomplishment. At the end of one-half hour following the appearance time, the bladder should be rinsed with sterile or distilled water, a glass piston syringe being used, and these rinsings should be added to the sample to be sent to the laboratory. If the sample contains gross blood, it must be boiled and filtered before alkalization. Frequently I have had the experience of checking patients with perfectly normal kidney function when previous reports had indicated a markedly lowered phenolsulphonephthalein output, the reason being that the total quantity of urine never got to the laboratory—usually because the patient failed to empty the bladder when asked to void at a designated moment. This is likely to happen to a somewhat embarrassed or perturbed patient, or to one to whom the necessity of getting out the last few cubic centimeters (often concentrated in its dye content) is not explained. Another source of error results if residual urine exists, whether from prostatism, organic spinal cord disease, or other reason. The amount of water ingested or quantity of urine excreted during a definite period of time bears no relation to the percentage output of dye during this given period of time; but a polyuria produced by filling up on water does lessen the error if some of the sample happens not to be collected or is spilled. Therefore, if the dye output by voiding methods is below normal, it should always be repeated with a catheter before final judgment is passed, unless sustained by reliable blood chemistry findings. The authors of textbooks on clinical diagnosis should elaborate on these sources of error if they are not to mislead and confuse the practitioner who makes only occasional use of the phenolsulphonephthalein test.

HEMATURIA AND PYURIA

Hematuria means inflammatory or other organic disease somewhere in the urogenital tract. Examination should be made in order to disclose the precise source or sources of the blood (or pus), and definitely the pathologic condition behind it. Examination for the source of hematuria should be made immediately, while the attack is on; for if the bleeding ceases before examination is made, it is often impossible to discover the source until another attack ensues, which may not be for a long time, for the reason that the bleeding may be

---

* Chairman's address, read before the Section on Urology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

due to incipient disease which leaves so little residual pathologic change that nothing can be told by clinical methods or technical procedures until the disease has progressed further. The causes and sources of the blood are so many that an adequate cysto-urethroscopic examination, generally speaking, should never be omitted. Any other method is largely guesswork. (The principal exception to this rule in practice is when blood in the urine obviously is a terminal hematuria from acute gonorrheal prostatitis or posterior urethritis.) An adequate examination may prove very brief and simple; or it may necessitate long systematic and thorough examination, including ureteral catheterization and complete kidney study with bilateral pyelography. The same rule applies to pyuria when the source of the pus is not obvious. So many times a patient with infection in the upper urinary tract is treated expectantly for several weeks until the constitutional and urinary symptoms have disappeared and the urine has cleared. This often makes an exact diagnosis very difficult unless there is some residual pathologic condition discovered, and if a urologic examination is intended, it should be made during an attack unless there is definitely a contraindication. In many cases the attack will be cut short by the drainage and dilation incidental to the examination.

RENAL TUBERCULOSIS

In renal tuberculosis, in nearly every instance, there are practically no urinary symptoms until the tuberculous process has extended to the kidney pelvis. Ordinarily, there is a temperature of perhaps 99.2 F., but rarely any pain over the kidney, except in later stages when the ureter has become markedly tuberculous. Polyuria, especially at night, is common, but in this stage, when confined to the kidney parenchyma, there is usually nothing to cause even a suspicion of renal tuberculosis. When the process extends to or breaks into the kidney pelvis, tuberculous pyelitis sets in, and vesical tuberculosis promptly ensues with an associated tuberculous ureteritis. The clinical picture then becomes that of cystitis. Any patient between the ages of 15 and 40, with pyuria of an apparently causeless nature over a period of ten or twelve weeks, who has had frequency, slight nycturia—perhaps dysuria—with acid urine that is negative for micro-organisms by the ordinary staining methods, should be suspected of having renal tuberculosis.

If one examination for tubercle bacilli is negative, it should be repeated until one either finds tubercle bacilli or is satisfied that they are not present. The average case of renal tuberculosis is diagnosed only after the patient has had bladder irrigations and other worthless and often harmful therapy over a period of from one to two years, whereas tuberculosis should have been suspected and diagnosed much earlier. The earlier the diagnosis, the quicker, surer, and more permanent the results. The national bank embezzler sooner or later —usually sooner—is apprehended in almost every instance; but he has more chances of making a clean and permanent getaway than a patient with renal tuberculosis has of effecting a permanent cure from nonoperative therapy. If the patient's urine shows neither albumin nor pus, it is certain he has no renal tuberculosis and it is then useless to search for tubercle bacilli; for all cases of tuberculous pyelitis, cystitis or ureteritis show pus, and certainly if there is no albuminuria there can be no tuberculous area in the cortex or medulla. If, on the other hand, albumin is present but no pus, tuberculosis in the parenchyma cannot be excluded absolutely. One cannot diagnose renal tuberculosis until it has broken through or extended into the pelvis.

In genital tuberculosis, epididymectomy is ordinarily the only surgical measure indicated or justified. Occasionally Young's radical operation—that of removal of the epididymis, vas deferens, seminal vesicle, and perhaps a portion of the prostate, is necessary, especially when caseation has occurred in the seminal vesicles and prostate.

RENAL MALADIES OF THE CLINICALLY OBSCURE ABDOMINAL TYPE

Kidney infections, ureteral stricture, renal calculus, and hydronephrosis often give a picture with a remarkable clinical resemblance to appendicitis or cholecystitis, and occasionally to mucous colitis or even intestinal obstruction. If the urine contains bacteria, pus or blood, urologic examination should not be neglected except in emergencies or in those too ill to withstand cystoscopy. Simple roentgen-ray examination will often give the clue. Cultures of urine are notoriously misleading by reason of probable contamination or because of saprophytes from the anterior urethra. Cultures are useful only to identify and determine the type of organisms underlying urinary infection, but not to determine positively the precise source, or organ, involved. Smears made from the centrifugalized sediment of freshly catheterized urine, when stained by the Gram method, are far more useful and reliable and ordinarily give a better quantitative answer.

Obscure conditions, especially those with otherwise unexplained gastro-intestinal or abdominal symptoms, should at least be considered, if not actually examined, urologically. Not infrequently a frank mucous colitis, with obscure etiology and illusory symptoms not definitely pointing to renal disease until a very thorough urologic examination has been made, promptly clears up after nephrectomy for renal disease for the reason that mucous colitis is frequently not a primary condition, but is secondary to other pathologic conditions somewhere between the diaphragm and the pubis. Roentgenography of the entire urinary tract (including the prostate in the male and as low as the pubis in the female) should never be neglected in conditions giving rise to any suspicion of disease in the upper urinary tract. In the long run, a roentgen-ray examination is the patient's best investment and cheapest insurance, being a simple procedure devoid of pain or distress, and frequently cuts short the distress of other examinations. In doubtful cases, when a patient is sent to the roentgenologist or gastro-enterologist for a gastro-intestinal roentgen-ray study, films should be made before the ingestion of barium meals or enemas; otherwise, unsuspected renal and ureteral calculi, if present, often are overshadowed by the barium and missed if this precaution is neglected, only to be discovered weeks or months later, to the chagrin of the clinician and the detriment of the patient. However, in hyperacute conditions it is occasionally better to operate needlessly and mistakenly for acute appendicitis than to waste much time in prolonged examinations in conditions in which every hour counts. Conversely, a diseased kidney can usually wait.

Perinephritic abscess can usually be diagnosed by clinical data plus the aid of the roentgen ray if the urologic findings are negative. In suspected perinephritic abscess, it is better to explore through a small incision over the lumbar fascia and obtain no pus than to delay several weeks until a pint or more of pus has formed with the resultant dissection of the parietal peritoneum and inevitable widespread sclerosis. A knife—not a needle—should be used for exploring; if pus is found, incision will surely be necessary and if the needle fails to disclose pus, it is no conclusive evidence of its absence. Hence, incision is inevitable.

CATHETER CYSTITIS—A MISNOMER

Usually, the nurse or intern is blamed for the occurrence of urinary infection following surgical operations when, as a matter of fact, the surgeon in charge should be held responsible. So often, one is told that after a few catheterizations the patient began to void and the use of the catheter was discontinued; still the fever and other symptoms continued and the urine was loaded with pus. The patient was in effect simply voiding the overflow with a big residual left behind. Infection follows catheterization of a healthy bladder only when that bladder is not emptied soon enough, often enough, and long enough. The greatest factor in the production of any infection of the upper urinary tract (including the bladder) is distention or back pressure—frequently on top of a latent infection. Distention brings about a "prepared soil,"[1] following which, some degree of infection is pretty sure to occur notwithstanding the most rigid aseptic catheter technic. Conversely, the intentional introduction of pyogenic organisms into the bladder does not produce infection, even in the presence of considerable trauma, if there is present no pathologic condition—active or latent—in the urinary tract, and there is no distention or residual urine. Hugh Cabot[2] discusses this problem at some length and, on both experimental and clinical data by himself and others, believes that postoperatively a patient should not be allowed to accumulate more than 10 ounces (300 c.c.) in the bladder. He instructs his nursing staff to catheterize the patient at any time after the twelfth postoperative hour if their observations lead them to believe that this amount has been reached, their conclusion being based on the patient's own sensations. Curtis[3] believes that distress should be the signal for catheterization. It occasionally happens, however, that a considerably distended bladder gives little or no distress, or any distress felt is referred to other organs or regions. Better twice as many catheterizations as necessary than 20 per cent. too few. If a patient after operation has persistent difficulty in urination or fails to empty the bladder, then an indwelling catheter should be used.

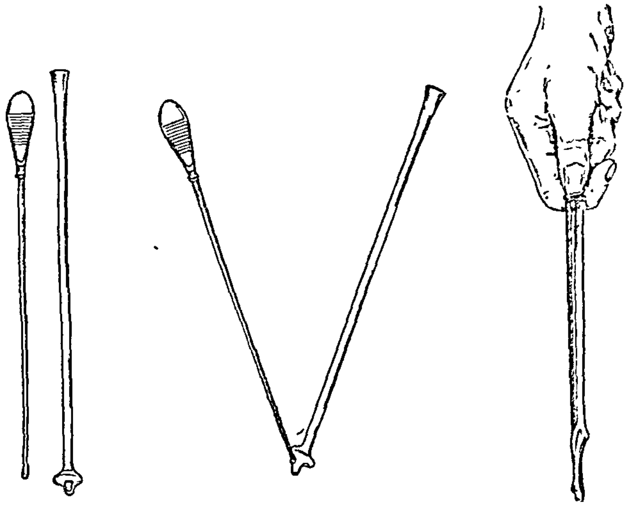


Fig. 1.—Pezzer and uterine sound and manner of diminishing the caliber of the button end.

In the female, a 22 Pezzer is inserted after the following method (Fig. 1): A uterine sound with an especially large and rounded point (Fig. 1 *a*) is inserted through the eye of a Pezzer catheter on into the hollow end (Fig. 1 *b*) and the rubber stretched as seen in Figure 1 *c*, the right thumb and forefinger holding it thus alongside the sound. This for the moment straightens out the button end and allows it to pass more easily through the urethra into the bladder. The operator, if right-handed, should stand on the right side of the bed and, after generous use of a water soluble lubricating jelly, his thumb and fingers of the left hand should separate the labia, exposing the vestibule with the urethra in the center, and the catheter pushed on into the bladder. The thumb and fingers of the right hand are then relaxed, allowing the end of the catheter to resume its button shape, after which the sound is carefully dislodged and removed. One now injects the syringe full of water or other solution into the bladder and, if there is a good return flow, the patency of the catheter is established. Slight traction should be made on the catheter until one's tactile sense shows that the button end has impinged on the bladder neck. It is then pushed into the bladder an additional half inch and a good sized glass connecting tube, with the two ends of the same caliber, inserted in the outer end to weight it down in a male urinal (Figs. 2 and 3). One should cut off the catheter before inserting the glass connecting tube, so that excessive length will not cause it to bend or kink. The catheter need not be strapped or tied in and will be self-retaining provided it is not connected up to a heavy rubber tube emptying into a bottle alongside the bed. If a female urinal is used, it is much more easily upset.

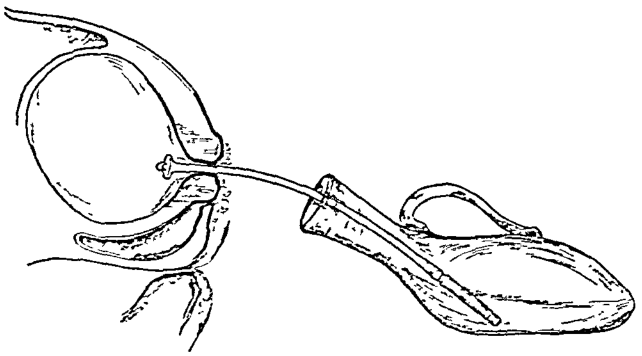


Fig. 2.—Pezzer draining into urinal between the thighs in recumbent position.

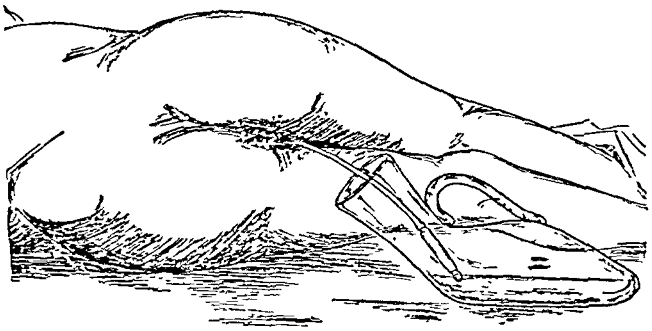


Fig. 3.—Position of urinal with patient on side.

---

[1] Doctrine of the Prepared Soil, Canad. M. A. J., September, 1921, quoted by Hugh Cabot.

[2] Cabot, Hugh, and Loomis, J. L.: J. Mich. M. S. 24:32 (Jan.) 1925.

[3] Curtis, A. H.: Management of the Female Urinary Bladder After Operation and During Pregnancy, J. A. M. A. 80:1126 (April 21) 1923.

Even urine in the bed is preferable to bladder stasis or distention.

In the male, a soft rubber or coudé catheter answers best. (A Pezzer catheter should never be forced through the male urethra because of the trauma it produces.)

When so-called urethral fever or a chill follows urethral instrumentation, four times out of five it means active or latent pyelonephritis—very often calculus; at most other times latent infection in the seminal vesicles or prostate. Therefore, if catheterization is harmless in the absence of a urinary pathologic condition, but not infrequently gives severe reactions if disease is present in the urologic tract, withholding the use of a catheter through fear of infection parallels the ostrich with its head buried in the sand. If there is a pathologic condition—latent or active—present, one should know it in order better to combat it.

LATENT PROSTATISM IN RELATION TO GENERAL SURGERY

A surgeon about to perform a serious operation on any patient should know that his patient is physically sound or, if not, know the nature and extent of all abnormalities present. In any male patient of the prostatic age (50 years old or more) particularly if the operation be for hernia or hemorrhoids acquired in the last few years, the catheter should be employed to ascertain whether or not there is residual urine. If the residual urine is considerable, kidney functional tests and preliminary drainage by an indwelling catheter should precede any elective operation for the same length of time one would take to prepare the same patient for prostatectomy. In the event of an emergency operation, an indwelling catheter or regular intermittent catheterization should be employed.

Prostatism, miscalled prostatic hypertrophy, is an adenomatous or sclerotic condition of the prostate, causing obstruction in some degree to the outflow of urine through the urethra. Hypertrophy of the lateral lobes or definite carcinoma may readily be felt by a finger in the rectum; but this procedure cannot be expected to disclose any evidence of middle lobe hypertrophy alone or of contracture or bar. The urine may be quite normal. A patient with clear urine is just as likely—sometimes more so—to have a severe infection with a stormy convalescence following a surgical operation, (perhaps a fatality), as a patient with infected urine. In the presence of residual urine, cystoscopy is usually necessary to discover the precise nature of the obstruction. One should always be on the lookout for tabes or other disease of the central nervous system before diagnosing prostatism. However, they may co-exist.

Detwiler Building.

Personality, Magic and Medicine.—What distinguishes the doctor from the healer is his undeviating rationalism. His recognition of the mental element in disease, whether as cause, as a symptom or as a cure, is deficient. He has a horror of introducing mystery into his treatment, even though his patients have not yet emerged from the darkness of superstition, and his practice would probably increase if they believed that the letters M.B. after his name indicated that he was a Bachelor of Magic. And he could always assure for himself and his family a respectable livelihood among the credulous, who form the majority of the population, if we could honestly assert that the letters Ch.B. were conferred upon him because he was a Bachelor of Charlatanism.—Robertson, G. M.: *Lancet* **2**:213 (Aug. 1) 1925.

DISTURBANCES OF VISION DUE TO DIGITALIS

REVIEW OF THE LITERATURE AND REPORT OF CASES *

HOWARD B. SPRAGUE, M.D.
PAUL D. WHITE, M.D.
AND
JOHN F. KELLOGG, A.B.
BOSTON

The first effective use of digitalis in medicine was made by William Withering and described by him in 1785. A study of the case histories that he outlines in his treatise shows that he was accustomed to give the drug in large doses and was familiar with its toxic effects. He begins his chapter on the therapeutic use of digitalis with this statement:

> The foxglove, when given in very large and quickly repeated doses, occasions sickness, vomiting, purging, giddiness, confused vision, objects appearing green or yellow; increased secretion of urine, with frequent motions to part with it, and sometimes inability to retain it; slow pulse, even as slow as 35 in a minute, cold sweats, convulsions, syncope, and death.[1]

Three cases of visual disorder are mentioned. The following one is most fully described:

> Case CVI. November 2nd. Mr. S—— of B—— h—, Aet. 61. Hydrothorax and swelled legs. Squills were given for a week in very full doses, and other modes of relief attempted: but his breathing became so bad, his countenance so livid, his pulse so feeble, and his extremities so cold that I was apprehensive upon my second visit that he had not twenty-four hours to live. In this situation I gave him the Infusum Digitalis stronger than usual, viz., two drams to eight ounces. Finding himself relieved by this he continued to take it, contrary to the directions given, after the diuretic effects had disappeared. The sickness which followed was truly alarming: it continued at intervals for many days, his pulse sunk to forty in a minute, every object appeared green to his eyes, and between the exertions of reaching he lay in a state approaching to syncope. The strongest cordials, volatiles, and repeated blisters barely supported him. At length, however, he did begin to emerge out of the extreme danger into which his folly had plunged him; and by generous living and tonics, in about two months he came to enjoy a perfect state of health.

It will be seen from this description that visual disorders were early recognized as resulting from excessive dosage of digitalis. That these effects are recognized today in England and America by many of the medical profession seems doubtful. The report of a case of yellow vision from digitalis intoxication made by Dr. Henry Jackson[2] at a meeting of the Suffolk District Medical Society of Boston, in December, 1924, prompted a survey of the literature. Personal observation of similar cases leads us to publish this review.

We have been unable to find any recent references in English indicating original work on the subject of visual disorders from digitalis, and such descriptions as were found were mainly confined to pharmacologic and toxicologic literature.[3] The reason for the latter condition is that disturbances of vision have been reported mainly in frank poisoning of accidental [4] or suicidal [5] origin or in cases of experiments conducted by investigators on themselves.[6] The occurrence of such toxic phenomena incident on the therapeutic use of digitalis has been reported much more rarely.[7] Personal communications from more than a dozen leading pharmacologists and clinicians interested in the actions of digitalis showed that these disturbances are very infrequently recognized in this country. Several ophthalmologists have reported no experience with them, and the American Encyclopedia of Ophthalmology states that amblyopia from digitalis is a rare occurrence. De Schweinitz [8] quotes only one case (Jeanton, 1885).

---

* From the Cardiac Clinic of the Massachusetts General Hospital.

* Read before the Section on Pharmacology and Therapeutics at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Withering, William: An Account of the Foxglove and Some of Its Medical Uses, Birmingham, 1785, p. 184.

[2] Jackson, Henry, Jr.: A Case of Yellow Vision Associated with Digitalis Poisoning, Boston M. & S. J. **192**:890 (May 7) 1925.

In the French and German literature, however, visual disorders from digitalis have been well described, especially by Purkinje,[6] Tardieu,[9] Koppe,[6] Martin,[10] Boucheron,[11] Focke,[12] Lewin and Guillery,[13] Kobert [14] and Uhthoff.[15] The types of visual disturbance have been diverse, but their character seems to be related to the individual susceptibility of the victim and the dosage of the drug. The most striking effect seems to be in color sensation. Withering noted the occurrence of green and yellow vision in toxic cases, and it has since been observed many times.

To persons poisoned to this extent, all objects appear green or yellow. The effect is often increased by going out into the sunlight, but some have stated that artificial light also produces the colored vision.[16] In one case of chloropsia from digalen, the green color returned in the evening during convalescence.[16] In a few instances, patients have complained that everything appeared illuminated by a red light,[4] while to others all objects and especially the flame of a coal fire looked blue.[17] To Brunton's patient his own hands and the faces of other people appeared blue.[6] Cases have been reported in which the surroundings were said to have appeared covered with snow or hoar frost.[18]

Dimness of vision, with inability to distinguish objects or people, inability to focus the eyes, and impossibility on the part of the subject to read even the largest print have been repeatedly mentioned. In one case there was said to be an increase in the size of letters, and they were all askew.[10] Another common complaint has been veiled, cloudy or "cottony" vision, both with and without the color disturbances. One instance is given by Lewin [19] in which the patient complained that there was hair constantly before his eyes.

Many varieties of subjective light sensation and scotomas are discussed. These range from flickering before the eyes (said by some to be a very early sign of digitalis intoxication) to flashes of light, rapidly moving sparks, spots of various colors surrounded by coronas, and complicated banded or notched figures.

Martin [10] reports a case in which there was oscillation of all objects in the visual field, letters took on a seesaw motion, and the surroundings were inclined 45 degrees to the left, causing the windows to appear lozenge shaped. This patient also had diminution of visual acuity for near and far objects and chloropsia.

Diplopia is described by Tardieu and others; while burning and pain in the eyes, reddening of the conjunctiva, and even slight pustulation with pericorneal injection have been reported.[20] Blindness, both temporary (up to three days) and permanent, has resulted from severe poisoning,[13] but the report of optic atrophy by Hauber [21] is of questionable accuracy.

Among the objective findings in cases of visual aberration are to be noted mild conjunctivitis, pupillary variation (most commonly dilatation, though constriction and inequality are said to occur), exophthalmos, and possible nystagmus.[22]

The mechanism of these disturbances of sight is not clear. Ophthalmoscopic examinations have been uniformly reported negative. Homolle and Quevenne reported an opalescence of the crystalline lens which Brunton could not corroborate. Lewin and Guillery have given the best survey of the subject. Many of the symptoms, they believe, could be due to functional cerebral alteration, especially as they are frequently associated with headache and functional disturbance of the retina and optic nerve. Introduction of digitalin into the conjunctival sac, they state, has resulted in contraction of the pupil or irritation of conjunctiva and cornea with colored vision said to be due possibly to action on the tensor choroidae and dilatation of the vessels of the iris.

Disturbance of color vision from the internal use of digitalis results without the occurrence of corneal icterus. Digitoxin alone has caused xanthopsia,[23] and digalen,[16] following tincture of digitalis, resulted in green vision. Homolle [24] conducted an experiment on himself with certain fractional elements from digitalis leaf and suffered from marked visual disturbance, cloudy vision, inability to fix his eyes, and a sensation of looking through a yellow fog. He concluded that digitalis contained essentially two active principles: one, digitalin, acting electively on the heart and uropoietic system; and the other, fatty matter (digitoleic acid) with an energetic emetic action, to which he attributed the effect on the visual organs. However, in patients poisoned by digitalin, vomiting was always preceded by visual disorder. It would seem that the agents responsible for the visual effects are as yet unidentified accurately.

---

[3] Witthaus, R. A, and Becker, T. C: Medical Jurisprudence and Forensic Medicine and Toxicology, New York **4**: 1085, 1911 Blyth, A W, and Blyth, M W Poisons, Their Effects and Detection, London, 1906, p 436 Cushny, A R The Action and Uses in Medicine of Digitalis and Its Allies, London, 1925, p 125

[4] Heydner, F: Ueber Digalenvergiftung, München. med Wchnschr. **58**: 1511, 1911 Köhnhorn, C Digitalisvergiftung, Vrtljschr f gerichtl. Med **24**: 278, 1876 Edward, J A Case of Poisoning from the Root of Digitalis Purpurea, Lancet **2**: 31, 1849.

[5] Jeanton, P Tentative de suicide, empoisonnement avec 90 grammes de teinture de digitale guerison en huit jours, Gaz d. hôp **58**: 441, 1885

[6] Koppe, R: Untersuchungen über die pharmakologischen Wirkungen des Digitoxins, Digitalins, und Digitaleins, Arch f. exper. Path u Pharmakol **3**: 289, 1874. Purkinje, J E: Beobachtungen und Versuche zur Physiologie der Sinne, Berlin **2**: 124, 1825. Homolle, A E, and Homolle, S. G: La digitaline au point de vue chimique, toxicologique et medicolégal, Paris, 1872 Brunton, T. L: On Digitalis. With Some Observations on the Urine, London, 1868.

[7] Stewart, J. Digitalis, Canada M & S J, 1885, p 273

[8] De Schweinitz, G E.. The Toxic Amblyopias, Philadelphia, 1896.

[9] Tardieu, A. A: Etude medico légale et clinique sur l'empoisonnement, Paris, 1875, p 750

[10] Martin, A: Empoisonnement par une infusion de 40 grammes de feuille de digitalis, guerison, Union méd **133**: 491, 1883

[11] Boucheron: Troubles visuels dans un cas d'intoxication par la digitale, Union méd **133**: 494, 1883

[12] Focke, C: Ueber Digitalis Vergiftung, Aerztl Sachverst Ztg. Berlin **9**: 312, 1903

[13] Lewin, L., and Guillery, H: Die Wirkungen von Arzneimitteln und Giften auf das Auge, Berlin **2**: 870, 1913.

[14] Kobert, R.: Lehrbuch der Intoxikationen, Stuttgart **2**: 1201, 1906.

[15] Uhthoff, W.: Die Augenstörungen bei Vergiftungen, Graefe-Saemisch Handbuch, Ed. 2, **11**: 123, 1907.

[16] Montandon, A.: Effect cumulatif de la digalène, Rev méd. de la Suisse rom. **30**: 378, 1910, quoted in Seifert, O.: Die Nebenwirkungen der modernen Arzneimittel, Würzburg, 1923.

[17] Taylor, A S: On Poisons in Relation to Medical Jurisprudence and Medicine, Philadelphia, 1848, p 599.

[18] Martin (Footnote 10). Lewin and Guillery (Footnote 13). Montandon (Footnote 16).

[19] Lewin, L: Die Nebenwirkungen der Arzneimittel, Berlin, 1899, p 565.

[20] Purkinje (Footnote 6).

[21] Hauber: Ein Fall von Digitalisvergiftung, München. med. Wchnschr. **37**: 727, 1890

[22] Galentine, C. B.: Boston M. & S. J **49**: 205, 1854.

[23] Koppe (Footnote 6).

[24] Homolle (Footnote 6).

The dose of digitalis necessary to produce disturbances of vision is probably smaller than is customarily assumed, if one includes the very earliest sensations that can be obtained by questioning the patient. The earliest of these is probably flickering before the eyes (*Augenflimmern*). Focke[12] calls particular attention to visual disturbance as a symptom of mild intoxication or as an early sign of more severe poisoning, and says that others have noted this, such as Jörg,[25] Schroen, Koppe,[23] Lauder Brunton,[26] Homolle and Quevenne. According to him it is a symptom of equal importance with gastritis and bradycardia. Witthaus[3] states that visual disturbances begin early in cases of poisoning.

Schulz[27] attempted to show that very small doses, 10 drops of the tincture of digitalis, could produce change in the red and green light sensation, but Bohnenberger[28] has since disproved this. Purkinje noted a weak flickering in one eye after 6 grains (0.4 gm.) of digitalis. Müller,[29] in an investigation on the therapeutic action of digalen in eighteen cases, found minor toxic symptoms in eleven, and in four of these there was flickering before the eyes after doses of 11 c.c. in three days to 31.5 c.c. in fourteen days.

In a case quoted by Lewin,[19] the patient had yellow vision after taking digitalis in "normal doses." Duroziez's[30] patient had green vision following a daily dose of 0.2 gm. of digitalis leaf for forty-three days. Montandon's[16] patient had green vision after about 60 c.c. of digalen in a month. (It should be noted that this patient had a pulse rate down to 24 and was extremely weak; but there was no vomiting, nausea, colic or diarrhea.) Taylor[17] notes that a few grains of the powdered leaves have been known to produce giddiness, languor, dimness of sight and other nervous symptoms; while Christison[31] says that "two or three grains of good foxglove" may cause the appearance of sparks before the eyes, dimness of vision and a feeling of pressure on the eyeballs.

The dosage in cases of severe poisoning with more marked visual disorder is necessarily inaccurate, because of the vomiting, and we are more concerned with the effects from therapeutic doses.

REPORT OF CASES

We have recently been paying particular attention to visual disorders occurring in patients receiving digitalis and have observed seven cases in which marked abnormalities have resulted. These cases are reported in this communication. Several other cases in which there were minor visual disturbances have also been seen.

Case 1.—L. G., a man, aged 48, Canadian, a carpenter, was admitted to the hospital from the outpatient department, Nov. 22, 1924, complaining of shortness of breath. He had been given by his local physician some greenish-gray pills to be taken two at a time four times a day. (It was decided on further evidence that these were pills of digitalis leaf, and an estimate showed that he had received from 4.3 to 6.4 gm. in the twelve days before admission to the ward.) He complained of no gastro-intestinal disorder at entrance, but had been nauseated and vomited once a few days before. A week before coming to the hospital he began to have visual disorders, which continued until admission. He noticed, on looking outdoors, that the atmosphere appeared smoky and all objects were a yellowish red. A paler yellow round spot could be seen in the field of vision of his left eye, while an irregular green scotoma disturbed the right eye. At times he saw rapidly moving, shiny spots, "like cut glass," about half an inch in diameter, passing horizontally before his eyes. He was able to read without much difficulty.

Physical examination showed his heart much enlarged, with the characteristic murmurs of mitral regurgitation and stenosis. There was persistent bigeminal rhythm, with a rate of 33. There were no signs of congestive failure. The blood pressure was 120 systolic and 70 diastolic.

Electrocardiograms at various times showed a regular idioventricular rhythm of 40 with frequent ectopic beats, a marked inversion of the T wave in Lead 2, and right axis deviation. It was difficult at first to make out any evidence of auricular activity, owing to the extremely slight deviation of the string; but later records revealed auricular fibrillation with ventricular arrhythmia.

Digitalis was omitted and the symptoms were relieved, but it was not until December 31, when the T wave had become + 1 mm. and the rate had risen to 80, that digitalis was again started in small doses.

Case 2.—I. Z., a housewife, aged 34, was seen in consultation by one of us, May 20, 1924, when a diagnosis of rheumatic heart disease with mitral stenosis and paroxysmal auricular fibrillation was made. There was slight cardiac enlargement but no congestive failure. Rations of quinidin sulphate (0.4 gm. daily) were given to her.

December 23, she was again seen, at her home, having been well until nine days before, when she had had an attack of auricular fibrillation. During the past week her local physician had given her 1.5 gm. (22½ grains) of digipuratum. She was extremely nauseated, and was vomiting and complaining of a constant bad taste in her mouth. For three or four days everything looked yellow to her, even the sky. She was unable to read a newspaper and had a bad headache. The gastro-intestinal disturbances preceded the visual by a day or two.

Her heart showed the same valvular defect, but it varied from a regular rate of 80 to a regular rate of 40, with frequent dropped beats between the two rhythms, undoubtedly partial heart block, at times 2 : 1.

She recovered from her symptoms in a few days with omission of the digitalis.

Case 3.—H. P., a housewife, aged 76, was admitted to the surgical service of the hospital, Jan. 28, 1925, for an operation for carcinoma of the breast. Her heart was essentially normal for a woman of her age. There were rather frequent premature beats, but no congestive failure. The rate was from 80 to 90.

She was given 2.8 gm. of digitalis leaf (42 grains) in 13 days, although she weighed less than 90 pounds (41 kg.). At the end of this time she complained that all objects about her were yellow, such as the nurses' uniforms, the pink carnations by her bed, and the automobiles in the street. There was no nausea or intestinal disorder, and the rate and rhythm of the heart were unchanged. Two days after omission of digitalis the yellow vision was much less marked, and within five or six days she had recovered.

Case 4.—L. M., an Italian laborer, aged 33, was sent to the hospital, Dec. 28, 1924, with dyspnea, palpitation and moderate edema of the legs. A diagnosis of rheumatic heart disease with mitral stenosis and regurgitation, aortic regurgitation and auricular fibrillation were made. He was digitalized in twenty-four hours with a dose of 21 grains (1.4 gm.). The heart rate fell from 135 to 75. He improved considerably and was discharged, Jan. 20, 1925.

Nine days later he returned to the outpatient department. Because of a misunderstanding at the time of discharge he had been given no daily maintenance dose of digitalis, and the apex rate had returned to 120 with absolute arrhythmia. He was given 4½ grains (0.3 gm.) of digitalis leaf a day for a week. He then vomited and discontinued the drug. When seen in the clinic he felt much better than at the previous visit. There was no congestive failure, and the heart rate was 60. Digitalis was advised, 1½ grains (0.1 gm.) a day.

---

[25] Jörg, M.: Expériences avec la digitale pourprée, Arch. général de méd. **26:** 107, 1831.

[26] Brunton (Footnote 6).

[27] Schulz, H.: Untersuchungen über den Einfluss der Digitalis auf die Empfindlichkeit für Grün und Rot, Arch. f. d. ges. Physiol. **156:** 610, 1914; Neue Untersuchungen über den Einfluss der Digitalis und ihr botanisch- oder wirkungsverwandter Pflanzen auf die Farbenempfindlichkeit des menschlichen Auges, ibid. **163:** 511, 1916.

[28] Bohnenberger, F.: Zur Frage der Wirkung von Digitalis auf den Farbensinn, Ztschr. f. d. ges. exper. Med. **11:** 138, 1920.

[29] Müller, L.: Zur Kenntniss der Wirkung des Digalens, München. med. Wchnschr. **56:** 904, 1909.

[30] Duroziez, P.: Du délire et du coma digitaliques, Gaz. hebdom. **11:** 780, 1874.

[31] Christison, R.: A Treatise on Poisons, Ed. 4, Edinburgh, 1855, p. 886.

A week later he returned complaining of nausea and vomiting, a feeling of suffocation, abdominal distress and precordial pain of five days' duration. He had continued his digitalis, though warned to stop it if nauseated. His abdomen was distended and tender, but there was no evidence of congestive failure. The apex rate was 68, with constant bigeminy (digitalis coupling). He was extremely weak and complained that all surrounding objects looked green. As there was no available bed for him at that time, he was admitted to another hospital.

Case 5.—E. J., an American machinist, aged 49, seen at the hospital, July 16, 1924, complained of "fluttering" of his heart on exertion for two years. There was no valve lesion evident on physical examination. The rate was 120. An electrocardiogram showed persistent auricular flutter with 1:1 and 2:1 block. The patient was given quinidin sulphate and digitalis when in the ward, without effect on the flutter. August 14, he was discharged with a diagnosis of probable arteriosclerotic heart disease. He has been followed in the cardiac clinic, and auricular flutter has been present whenever he has been observed.

In September, 1924, he was given 36 grains (2.4 gm.) of digitalis in two and one-half weeks, without toxic symptoms or effect on the heart rate. October 2, an electrocardiogram showed an auricular rate of 280, with the ventricle keeping pace. This changed at times to an auricular rate of 320 with 2:1 block. He received 30 grains (2 gm.) of digitalis leaf in the following week. The auriculoventricular block was considerably increased, making the ventricular rate about 100, but he became nauseated and had some dimness of vision. Digitalis was reduced to 1½ grains (0.1 gm.) a day.

Quinidin sulphate was again tried without effect during November; December 18, digitalis was again started. In two weeks he received 5.5 gm. of digitalis. An electrocardiogram then showed impure flutter, with an apex rate of from 85 to 100. He complained of nausea and yellow vision, and said that purplish white spots were to be seen in the line of vision, and a silver scotoma, like a moon, would float from the lower left to the upper right quadrant of the visual field.

He was put on 1½ grains (0.1 gm.) of digitalis a day. This was later increased to 3 grains (0.2 gm.) daily. March 26, 1925, he said that he could still see yellow spots on the floors and walls during the day time, and at night objects assumed a greenish hue. In sunlight, faces appeared dead white without details or as if covered with snow. He had difficulty in focusing his eyes, and his glasses no longer helped him. His cardiac complaints were less, however, as his apex rate was 92, with periods of probable 4:1 block.

Case 6.—S. W., a housewife, aged 60, had been followed for eighteen years in the outpatient department and treated for hypertension and myocardial weakness. Feb. 6, 1925, she was receiving 1½ grains (0.1 gm.) of digitalis leaf a day. Because of increasing dyspnea she was told to increase this to 3 grains (0.2 gm.) every other day. A month later she returned, having been severely nauseated for four or five days. In addition to this her head felt very full, she was dizzy, and she had a sensation as if she were looking through a mist. She had never had such visual disturbances before, and they seemed to come in attacks several times a day, lasting from a few seconds to a few minutes. Her heart rate was 92. Digitalis was omitted for five days, and the symptoms disappeared.

She said that she thought two pills were probably better than one, and had taken 3 grains (0.2 gm.) a day during most of the previous month. A slow cumulative effect was produced by this overdose.

Case 7.—J. D., an automobile repair man, aged 58, seen in the outpatient department, March 15, 1922, complained of constipation, and pain over the heart of three years' duration. Physical examination in the cardiac clinic showed slight enlargement of the heart to the left, and a precordial systolic murmur loudest at the apex. The blood pressure was 152 systolic and 85 diastolic. An electrocardiogram showed marked left axis deviation, and a roentgenogram of the heart indicated enlargement in the region of the left ventricle. The blood Wassermann reaction was strongly positive. A diagnosis of cardiovascular syphilis was made.

Feb. 12, 1925, he was seen complaining of dyspnea, and although his lungs were clear it seemed advisable to digitalize him. He was given 1½ grains (0.1 gm.) of digitalis leaf three times a day for a week and told to return at the end of this time. However, he did not return until March 12, having taken digitalis, 4½ grains (0.3 gm.), daily for two weeks, making a total of about 60 grains (4 gm.). He then had considerable nausea without vomiting, marked weakness, with flickering before his eyes and the sensation as if he were looking through a white cloud on going outdoors. There were no abnormal color vision disturbances. His heart showed normal rhythm. The symptoms cleared up on the omission of digitalis.

COMMENT

All these seven patients received an excessive amount of digitalis. In all but one case, this was due to incorrect dosage by the physician in charge, or misunderstanding on the part of the patient.

Five patients complained of a defect of color sensation; four had yellow vision, one red-yellow, and two green. All complained of decrease of visual acuity, and three said that they seemed to be looking through mist. Two had difficulty in focusing the eyes or reading, two had definite scotomas, and three had flickering before the eyes. In one instance the patient said that surrounding objects in sunlight appeared covered with snow.

In two cases the visual disorders preceded the gastro-intestinal and cardiac effects; in two others, disturbances of the eye were associated with nausea and vomiting as the first toxic symptoms. Two patients with marked visual effects had no change in cardiac rate or rhythm, and one of these had striking xanthopsia without either nausea or cardiac effects.

In three cases, extreme muscular weakness, described in digitalis intoxication, was a prominent feature. This, with the gastro-intestinal complaints, was considered by the patients of more serious importance than the eye symptoms; and it was therefore necessary to question them carefully to secure an adequate description of their visual disorders.

SUMMARY

Disturbances of vision resulting from the internal use of digitalis have been known at least from the time of Withering. Such disturbances have only rarely been described in the English literature, but have been carefully reported in German and French. Their occurrence at present in this country is very infrequently recognized.

Because of the importance of noting visual disturbances in all grades of digitalis intoxication, we are reporting a series of seven cases. These cases present symptoms of a toxic amblyopia with dimness of vision, flickering and flashing scotomas and marked disturbance of color vision. It is apparent that visual disorders from the therapeutic use of digitalis are more common than is supposed, and should be noted. Further study of the eyes in such cases, especially of the retina and visual fields, is desirable.

130 Longwood Avenue.

ABSTRACT OF DISCUSSION

Dr. J. B. Guthrie, New Orleans: I have seen, following out this plan of the full therapeutic dose, some very excessive doses of digitalis given in the last four or five years, and I never have seen the visual disturbances reported. The only case that I remember occurred about twenty years ago. I had prescribed a dram of fluidextract of ergot every four hours. The patient got four doses of normal liquid digitalis instead of the ergot. A distressing weakness resulted, but there was not any green vision, although flashes of light were distinctly observed by the patient. There was vomiting but no purgation. Looking back over my own experience with digitalis, I feel that visual disturbances indicate that we have long passed the threshold of safe therapeutic action. However, we must bear in mind that some patients may develop these visual disturbances before they would develop, for example, the extrasystole seen so frequently.

Dr. A. I. Rubenstone, Philadelphia: I never have made observations that have led me to think that visual disturbances following digitalis are a very frequent occurrence, but it is probably due to lack of investigation more than anything else. The point I want particularly to mention and ask Dr. Sprague about is this: What percentage of visual disturbances are present in patients who have mental disturbances in the course of cardiovascular diseases? We frequently see patients who are very sick, who are under digitalis therapy and who have mental disturbances due to cardiovascular inequilibrium. Of course, in cases of that type there is apt to be visual disturbance. I recall one man who had a variety of mental symptoms, among which were disturbances of color vision. He thought that the intern on service was after him with a 0.32 caliber revolver, and a few minutes after that he made the observation that everything in the ward was green, and so on.

Dr. Paul D. White, Boston: I had the pleasure this winter of collaborating with Dr. Sprague in the observation of these cases, and although I had used digitalis for years before, it was not until last December, when our attention was called to the possibility of visual disturbances by Dr. Henry Jackson of Boston, who discovered a case, that I realized they might be found frequently. Since December we have discovered cases chiefly by careful questioning. Some of these patients are so toxic and have so much nausea and vomiting that the visual disturbance is much less impressive to them, and its presence has to be brought out by questioning; but in some cases it apparently appears even before the nausea, and fades away after the nausea has gone.

Dr. Howard B. Sprague, Boston: I think the point Dr. Guthrie brought out is very well taken, that we are apt to see the toxic effects of digitalis more commonly than we used to. Before the recent studies of digitalis and its practical therapeutic dosage were begun, digitalis was commonly given in ineffective amounts, but now I think men are beginning to use it in very effective doses and in some instances more than satisfactory doses, so that it might be a good plan to be on the watch for these visual disturbances. As to their coming as early symptoms, the minor grades of visual disorder, the flickering before the eyes and the slight mistiness, may come very early; at least we know that it may come in persons who have not had more than a theoretical dose, assuming that to be 0.1 gm. of powdered leaf for every 10 pounds (4.5 kg.) of body weight. As I said, in some cases there is an idiosyncrasy to the drug which may account for early toxic reactions. In the series we are reporting, several patients were not markedly toxic, as we understand digitalis intoxication from other points of view. Two or three of them were ambulatory, and complained of this disturbance while they were up and around. None of our patients gave evidence of any mental disorder from digitalis. We know that that does occur, and that hallucinations, delirium and coma from digitalis were described by Duroziez in 1874 and probably before that; but our patients did not have mental disorders. One other case that is worth mentioning was described to me recently by Dr. Carr of Chicago. A man who was receiving digitalis in normal doses complained of increasing dimness of vision and finally almost complete blindness. He was seen by a great many ophthalmologists, and they could find nothing on examination which would indicate anything wrong in the retina or in the optic nerve. Digitalis was omitted and his sight returned completely. A few months later, when digitalis was started again, he became blind, but vision returned when the drug was stopped. Since then he has continued digitalis in smaller doses, but a slight excess immediately causes some dimness of vision.

STATIC PERITONITIS IN THE MALNOURISHED INFANT

REPORT OF CASES [*]

JOHN A. FOOTE, M.D.
WASHINGTON, D. C.

Marfan, in discussing malnutrition in the infant, designates as hypothreptic those infants who have not yet passed the threshold of actual atrophy, and as athreptic those who show the characteristic syndrome recently studied in the laboratory of Marriott and his co-workers. This syndrome is ordinarily caused by food injuries plus acute infections, such as pharyngitis. Chronic or subacute infections, such as tuberculosis or syphilis, or the terminal stage of such acute infections as are produced by the less virulent types of the dysentery group of bacteria, may also be the provocative agents of the metabolic disturbance. The apparent functional disability of alimentation as shown by defective digestion and absorption has, in the past, been attributed to the impaired nutrition of the intestinal glands and of the intestinal mucosa and the muscularis. Yet while this disability is noticeably local in character, it is really caused by a lowered metabolic efficiency of the body as a whole. Clinical research has long endeavored to discover why this type of infant should display wasting and impaired metabolic function so much more intensely than the older child. The phrases "impaired food tolerance" and "metabolic injury" were useful in describing, but not in explaining, this condition. Not until some recent observations were made on the physics of the circulation and the chemistry of the blood in the athreptic infant has definite light been thrown on the probable genesis of these malnutritive states.

AN ATROPHY OF THE BLOOD

The results of the work of Marriott and Perkins[1] in studies of the blood volume of the athreptic infant are corroborative of the hypothesis that, in this condition, the blood itself suffers a wasting of its formed and unformed constituents, a wasting which results in alterations not only in its chemical constituents but also in its physical volume and flow. Thus, the average blood volume of the athreptic infant under 1 year of age was 8 per cent. of the body weight, with a minimum of 4.1 per cent. This is in striking contrast to the normal infant in whom the blood volume averages 9.1 per cent. In addition, the volume-flow of blood in these abnormal infants was found to be diminished to about one fifth of the normal, and in a few cases to one tenth. A serious diminution in the number of red blood cells in the blood stream, as well as a relative concentration of the protein, was also found to be present as a rule—evidence enough to support the presumption that the blood, considered as an organ, suffers in these children to the same degree as do the other organs or tissues of the body.

Many earlier observers have written of the occurrence of gastric and duodenal ulcers in the athreptic infant. That their development would be favored through the diminished flow and diminished quality of the blood supplying the tissues of the intestine seems logical enough. That, likewise, the tissue-ischemia, existing as regards quality and quantity of the blood, and its resultant anoxemia, would intensively favor intraperitoneal infection, especially through the umbilical vessels, and at the same time would diminish the ability of the involved tissues to react vigorously against such an infection, seems not only logical but very probable. The fact that infants who have reached the condition of athrepsia through food injuries, alimentary infections or general infection may develop inflammatory reactions in the peritoneum seems to have been recognized clinically, but that the symptoms of such reactions are not at all typical, even when actual obstruction has occurred, is a fact that has not been emphasized or traced to its cause.

---

[*] Read before the Section on Diseases of Children at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Marriott, W. M.: Some Phases of the Pathology of Nutrition in Infancy, Am. J. Dis. Child. **20**: 461 (Dec.) 1920.

OCCULT PUS IN THE PERITONEUM

Recently Denzer,[2] in reporting the procedure for aspiration of peritoneal fluid through a capillary tube for the purpose of diagnosis, found that the exudate in a surprisingly large number of atrophic infants showed pus in the peritoneal fluid, although few or no local symptoms were present. He said, "The signs of peritonitis, so striking in the adult, are vague and misleading in the infant. Pain, localized distention and paralytic ileus are either absent or difficult to elicit."

Surgeons have noticed this peculiarity in certain infants. Downes,[3] in analyzing the deaths that followed the operation of pyloroplasty in infants, said that only a necropsy can exclude peritonitis as a cause of death, since local typical symptoms are not present. Many infants who die from this operation are in an athreptic condition and really succumb because of starvation. It is these athreptic infants who develop the occult or static type of peritonitis.

ATYPICAL INTUSSUSCEPTION IN WEAK CHILDREN

Even such a characteristic symptom-complex as intussusception has atypical cases, which can, perhaps, be explained as the static reaction to abdominal infection seen in athrepsia. In 1,028 cases of intussusception collected by Julius Hess,[4] 170 patients gave details of the history of vomiting and, of these, only four did not vomit when pain appeared or soon afterward. Eighty-nine per cent. of Martin's patients vomited, with fecal vomiting in twelve out of ninety-three of his cases, on or after the fourth day. Tumor was seen in eighty-three of ninety-seven cases in Hess's series, and in Hemmeter and Lichtenstern's [3] cases it appeared in about 50 per cent.

These differences in pain, vomiting and other dynamic features may be explained by Abbot's [5] series of cases—a series carefully studied before operation by a pediatrician as well as the surgeon. All the patients were under 3 years of age. Pain was marked in all the vigorous children, but of those who were in collapse pain was shown only by a drawing up of the limbs. Vomiting was the rule on the second day. Studying the protocols of these cases more closely, it is found that the marked symptoms of pain, vomiting and the like were retarded as a rule, and were diminished in a particular class of cases—those in which the patients were poorly developed or nourished and who, as a result, suffered quick collapse. Dumbar [6] in Edinburgh, reporting fifty-two cases, noted absence of rigidity and evidence of pain, especially in three malnourished infants under 6 months of age. One of these infants was aged 3 months, one 4 months and one 6 months. All had some distention but no rigidity and no tumor. Kahn [7] also speaks of the absence of tumor in depleted children, and reports two such cases in which even with gangrene of the bowel the sausage-shaped tumor was absent.

It is evident, therefore, that, because of a static reaction in the depleted infant, the diagnosis of even so characteristic a disease as intussusception may be difficult.

NEONATAL INFECTIONS AND PERITONITIS

Probably a very large class of peritoneal infections in the poorly nourished or premature new-born child find entrance by way of the umbilical vessels, causing a periarteritis or, more frequently, a phlebitis. Crawford, at a conference at Children's Hospital, Washington, D. C., a year ago, reported the case of a 3 weeks old infant with subnormal temperature, that apparently died of inanition, with no symptom of peritoneal involvement. What appeared to be an abscess of the right iliac region had been incised and drained. The necropsy revealed a ruptured appendix surprisingly well walled off. At no time were the usual symptoms of peritonitis present.

ILLUSTRATIVE CASE HISTORIES

Case 1.—Joseph W., a typically athreptic infant, aged 9 weeks, came to the ward service at Children's Hospital with a history of rapid loss of weight and of diarrhea following the institution of artificial feeding. The skin was grayish and flabby, the temperature was subnormal and the abdomen was scaphoid. A granulating surface was seen over the umbilical scar. The child weighed 6 pounds (2.7 kg.), cried weakly and regurgitated if more than 2 ounces (60 c.c.) of food was taken. One ounce (30 c.c.) of breast milk was given every three hours, and intraperitoneal injections of 4 ounces (120 c.c.) of physiologic sodium chlorid solution was administered once a day. Much to our surprise, the infant gained weight, although the general condition seemed worse. After seventy-two hours intermittent vomiting began suddenly, the abdomen became much distended, and within a few hours death occurred from exhaustion.

Necropsy revealed a septic thrombus in the umbilical vein, and general peritonitis, with a large amount of free pus mixed with some unabsorbed salt solution in the peritoneal cavity. No evidence could be found of injury to the intestine from the injections. A very small perforating ulcer on the posterior wall of the duodenum was seen near the pylorus.

Up to a few hours before death, this infant showed no classical symptom of peritonitis.

During 1924, in my infant ward service, twelve other athreptic infants less than 6 months old succumbed to respiratory infection, with rapid loss of weight and diarrhea. No umbilical infection was found in any of them as in the case of Joseph W., but other symptoms and necropsy findings were similar. Only two of these infants were given intraperitoneal injections of physiologic sodium chlorid solution, and these two gained in weight. Necropsy showed pus in the peritoneum of four infants in this series.

INFLUENCE OF PREVIOUS INFECTIONS IN OLDER CHILDREN

That severe toxemia, such as that brought about by ileocolitis, even in a previously well nourished infant, may result in an atypical reaction to peritoneal injury is shown by a case from my service at Children's Hospital, that has been reported by Dr. Ella Oppenheimer.

---

[2] Denzer, B. S.: The Diagnosis of Peritonitis and Peritoneal Exudates, Arch. Pediat. **39**: 720 (Nov.) 1922.

[3] Quoted by Denzer (Footnote 2).

[4] Hess, J. H.: Intussusception in Infancy, Illinois M. J. **8**: 33, 1905.

[5] Abbot: Tr. West. S. A., 1915, pp. 299-306.

[6] Dumbar, H. J.: Acute Intussusception, Scot. M. & S. J. **19**: 97-150, 1906.

[7] Kahn, L. M.: Absence of Sausage Shaped Tumo tion, M. Rec. **74**: 526, 1913.

Case 2.—A colored boy, aged 16 months, had been given table food a week previously, and had developed slight diarrhea with blood and mucus in the stool. When received at the Children's Hospital, he was toxic and showed recent loss of weight, with a depressed fontanel and torpidity. Roughened expiration was heard at the apex of the right lung, anteriorly. The abdomen showed moderate distention, but no rigidity or muscle spasm. The temperature was 102 F.; the pulse, 160; the hemoglobin, 50 per cent.; white blood cells, 20,000; red cells, 2,500,000. The urine showed albumin and a few hyaline casts. During the first day in the hospital, no bowel movements occurred. An enema resulted in a fecal stool with blood and mucus. The abdomen had become more distended and the breathing more rapid. Fluid given was well retained. Dulness was found in the right axillary region, from the fifth to the seventh rib; a cough was present, but there was no vomiting. The patient was evidently not in pain, but gave the clinical impression of pneumonia complicating colitis. The following day the temperature remained at 104 F. and the abdominal distention increased rapidly. Rectal examination was negative, but enemas produced mucus flecked with blood and did not relieve the tympany. Vomiting began on the third day, and stomach lavage returned gas with mucus and blood. A diagnosis of intestinal obstruction, probably due to intussusception, was made. At operation the ileum showed dark areas corresponding to ulcerated patches in the mucous membrane. The entire bowel was much distended, and perforated when handled. The cecum was distended and covered with adhesions. The child died soon after closure of the abdomen.

At necropsy, an intussusception of the ileum and appendix into the cecum was found. Much edema and one gangrenous area were observed in this portion of the intestine. Inflamed and hemorrhagic areas were seen throughout the intestine, and in many places the peritoneal coat was split and had separated from the intestinal coat. When the intestine was opened, numerous small ulcers were found in the mucous coat of the ileum and colon. Permission for a more complete necropsy was refused.

This depleted infant suffering from ileocolitis, and probably from a complicating pneumonia, died of intussusception, with practically none of the earlier symptoms regarded as classic. The effect of the original dysentery in bringing about this depletion cannot be ignored.

ANATOMIC INTUSSUSCEPTION FOLLOWING THE USE OF PITUITARY EXTRACT

That vomiting and other dynamic symptoms need not occur in these weak infants who have intussusception is well shown in a case from the service of Dr. W. F. O'Donnell.

Case 3.—A boy, aged 13 months, admitted to St. Ann's Infant Asylum, was supposed to have been four to six weeks premature. Most of his life he had been ill with gastro-enteric upsets and a persistent cough. When he was 12 months old, a diagnosis of miliary tuberculosis was made. The child was emaciated; weighed about 8½ pounds (3.8 kg.); the fontanel was sunken; face drawn; eyes prominent; tissue turgor practically absent; chest poorly developed and filled with numerous fine râles; abdomen markedly distended and very tense. Muscle spasm and rigidity could not be made out, and special masses could not be seen nor felt. The distention was apparently interfering seriously with respiration, and repeated soapsuds enemas failed to give relief. Pituitrin obstetrical, Parke, Davis & Co., 0.3 c.c., was injected intramuscularly at 2 p. m. Wormlike movements of the distended intestines could easily be seen, and a quantity of gas was expelled from the rectum. A soapsuds enema was returned with large quantities of gas and a green stool containing mucus. After the enema, the abdomen was soft and the dyspnea was appreciably relieved. At 11 p. m., pituitary extract and enema were repeated for the same indications and with a similar result. The child gradually became weaker during the night and died at 6 a. m. No vomiting or convulsions preceded death.

Necropsy showed four areas of intussusception; three were in the small intestine and were 1½ inches (4 cm.) long—one of these areas was just invaginating; the area in the large intestine was in the transverse colon and about 1 inch (2.5 cm.) in length. All were reducible, and the shortest in the small intestine reduced readily. The invaginated areas were congested, with fine adhesions between the peritoneal coats. Throughout the abdomen were a number of adhesions between loops of intestine, and at each invagination the involved intestine was in whole, or for the greater part, surrounded by a constricting adhesion.

Evidently, as a part of a general infection with tuberculosis, a tuberculous peritonitis was present with adhesions that produced a gradually increasing ileus. The storm of peristaltic waves produced by pituitary extract and the enemas forced the proximal portion of intestine into the distal at points at which the adhesions were strong enough to interfere sufficiently with the regular progression of peristalsis. This must have occurred some time before death, since the involved bowel was congested. We must, of course, consider the unequal peristalsis that comes in the death struggle. The occurrence of intussusception of the dying is not uncommon and has been noted frequently at necropsy in infants that are normal in other respects. In intussusception of the dying, multiple small invaginations are found, which are very readily reducible, as in this case, but no congestion is seen in the intestine subjacent to the invaginated loop, nor in the loop itself.

Pituitary extract in cases of ileus, or in inflammatory conditions when there are adhesions, may produce an intussusception of the dilated bowel, and is consequently not without danger. This athreptic infant did not react symptomatically to the same degree as the normal child, especially in the matter of vomiting or crying from intense pain during the early stages of intussusception, nor in the usual local signs of intestinal obstruction, although numerous constricting bands and several areas of intussusception were found at necropsy. No blood was observed in the stool at any time.

CONCLUSIONS

If it is permissible to draw conclusions from the foregoing, we may deduce the following:

1. Premature, toxic, and typically athreptic infants display symptoms of peritoneal injury in a manner that may be termed static. One patient showed infection through the umbilical vein.
2. In intussusception in the athreptic infant, pain, tumor and vomiting may be seen only late in the disease, and diagnosis may be difficult.
3. Even slight distention, not reducible by enemas, in emaciated infants, should be a contraindication for intraperitoneal instillation of salt solution or blood. *A gain of weight after this procedure in desperately ill athreptic infants means a nonabsorbing peritoneum.*
4. Usually, by the time it is possible to establish the diagnosis with certainty, treatment is unavailing. Hence the need for prophylaxis of athrepsia by breast milk feeding and care as to the hygiene of the infant in the first weeks of life.
5. The use of pituitary extract to promote peristalsis in young infants is fraught with danger, since it readily produces intussusception.

1861 Mintwood Place.

THE PSYCHIATRIC CLINIC IN THE GENERAL HOSPITAL*

IRVING J. SANDS, M.D.
Associate in Neurology, Columbia University College of Physicians and Surgeons
NEW YORK

Among the many recent advances made by the medical sciences, none can approach in extent and significance those made by psychiatry. Within a brief period of some twelve years, the latter has extended its scope of activity from the narrow, circumscribed field of caring for the mentally sick committed to state hospitals for the insane to the large, boundless sphere dealing with the problems of the great realm of conduct disorders. In so doing, it did not confine itself to unraveling the mysteries of the psychoses, or plumbing the depths of the roots of the psychoneuroses, but it also penetrated the jungles of criminology and penology, invaded the marshes of delinquency and dependence, entered the sacred domains of theology, and did not even spare the sanctity of the home and family. As a result of this adventure, many new facts have been brought to light, and greater emphasis has been laid on those already known, so that a better understanding of human behavior can be arrived at in the light of the knowledge thus gained.

The credit of this achivement belongs to many workers in the various fields of psychopathology and mental hygiene, especially to the staffs of the National Committee for Mental Hygiene. This committee, after a scientific, systematized plan of action, has brought to light many invaluable facts relative to the general subject of mental disease. Uniform psychiatric nomenclature has been encouraged so that at present psychiatrists not only think alike but also speak alike. Surveys in jails and penitentiaries have proved the old belief that the vast majority of criminals are mentally ill. Surveys in the field of delinquency and dependence likewise established the causal relationship of these phenomena to mental aberration. Demonstration clinics have been established throughout the country, thereby creating a market for mental hygiene by revealing to the community the value of the psychiatric approach, not only to definitely psychiatric subjects, but to allied sociological problems as well. The *Journal of Mental Hygiene,* and, lately, the *Mental Hygiene Bulletin,* have made mental hygiene no longer a luxury, but a necessity to the average community. As a result of the various studies from the different groups of workers, many facts have been brought prominently to the foreground. Some of the most prominent ones are the following:

1. Human action results from definite internal and external factors which are subject to modification by proper training.
2. The pattern of human reaction is formed in infancy and childhood.
3. Many of the cases of delinquency, dependence and criminality are the result of disturbance in the pattern formation of conduct in infancy, or the result of mental defect and disease.
4. Insanity is a legal, and not a medical, term.
5. Owing to the many legal complications entering the treatment of psychotic people, there is a general misunderstanding on the part of both the legal and the medical profession as to the exact method of procedure in their management.
6. There is a general aversion on the part of the public for state hospitals.
7. There is a great need for treatment of the mentally sick outside state hospitals and licensed private institutions.
8. There is a need for means of detecting earliest possible manifestations of mental disorders.
9. There is an urgent need for mental clinics in the schools, courts and penal institutions.
10. There is a great need for the psychiatric clinic in a general hospital.

DEVELOPMENT OF PSYCHIATRIC CLINICS

The establishment of mental clinics is of only recent origin. Until about 1913, the state hospitals and private licensed institutions were more or less isolated from the rest of the community, and concerned themselves only with the care of their wards, paying no attention to the environment from which they came or to which they were returned. Thus, only those who were legally committed to these institutions were able to receive proper psychiatric care. Those suffering from mild forms of mental disorder, not requiring commitment or certification as insane, were unable to get treatment. Even those who were discharged from the state hospitals were suddenly forced to shift for themselves in environments which were often the very cause of the mental break. Occasionally, a far sighted superintendent of a state institution offered a means for those who were not necessarily certifiable as insane to come to the institution to receive help for their mental ailments. Thus, as far back as in 1885,[1] the superintendent of the Pennsylvania State Hospital for the Insane opened a clinic in the outpatient department of the Pennsylvania General Hospital "for the advice and treatment of mental diseases in their early or incipient stages, occurring among the poor and indigent, where such diseases had not so far progressed as to require restraint within the walls of the hospital." This clinic, to the best of my knowledge, was the first attempt at the establishment of a psychiatric clinic in a general hospital. In 1909, the superintendent of the St. Lawrence State Hospital, Ogdensburg, N. Y., set aside one day a week for the treatment of incipient mental cases that might arise in the community not necessarily requiring intramural care. But these are mere sporadic instances in which men much ahead of their times recognized the urgent need for such clinics.

About 1913, the psychopathic hospital idea gained a foothold. An opportunity was thereby furnished for incipient mental cases to receive exhaustive psychiatric survey and treatment without being forced to enter state asylums. Outpatient departments were opened at the Phipps Psychiatric Institute and at the Boston Psychopathic Hospital. In the same year, a law was passed making it mandatory in the state of New York for the superintendents of state hospitals to establish clinics. Patients were no longer discharged from the various institutions but were placed on parole for periods from three months to two years, so that while they might be at large, they were still required to report to these clinics for assistance and treatment to insure proper adaptation to their environments. It was found that, in order to enable these paroled patients to carry on, it was necessaary for them to receive help in securing employment, adjusting family situations, obtaining proper medical attention, and, frequently, moral support. In order to accomplish this, a social service system was instituted, whereby a worker trained in psychiatric problems made frequent visits to the homes of the patients, assured their visits to the mental clinic, and looked after perplexing problems that might arise. These clinics have, in a measure, brought the community in closer touch with the state hospital, and have tended to dispel the fear and distrust entertained toward them by the public at large. The community was encouraged to bring to the clinic those who presented mental disorders in general—the mental defectives, delinquents and problem children. Thus, these clinics offered invaluable service in the solution of problems other than that of caring for the parole patients, becoming a sort of clearing house for mental derelicts.

---

* Read before the Section on Nervous and Mental Diseases at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Abbot, E. S.: Outpatient or Dispensary Clinics for Mental Cases, Am. J. Insan. 77:217 (Oct.) 1920.

BEHAVIOR PROBLEMS IN CHILDHOOD AND ADOLESCENCE

Simultaneous with the establishment of the mental clinic, there has arisen a universal solicitude for child welfare. Various charitable organizations and child caring agencies, and juvenile courts, have established mental clinics of their own. Healy, Adler and others entered on intensive studies of juvenile delinquency in courts and penal institutions. Even industrial and business organizations have found it expedient, as a matter of business policy, to establish miniature psychiatric clinics for mental surveys of their personnel. In 1914, at Leavenworth, Dr. King established the first army mental clinic in order to deal with problems that would arise among the enlisted men, and in the military prison. In 1916, Dr. Glueck[2] established a clinic at Sing-Sing prison, which was fostered by the National Committee for Mental Hygiene. With our entry into the war in 1917, the absolute necessity of these clinics in dealing with human problems became obvious. Never before did the country face such problems as at that time. The Neuropsychiatric Division of the Army was then established, and its work is familiar to every one interested in psychiatry. Its work has been monumental. At the close of the war, the National Committee for Mental Hygiene, under the leadership of Dr. Salmon and Dr. Williams, entered on its program of surveys[3] of jails, penitentiaries, almshouses and charity organizations, and of the institution of demonstration clinics in different cities. These surveys have proved even to the skeptic the relationship of mental disease to crime and dependence. Intensive investigations in behavior problems of infancy, childhood and adolescence were instituted in clinics established by heavily endowed foundations, such as the Commonwealth Fund and the Judge Baker Foundation. Many charitable and religious organizations soon began to form mental clinics of their own in order adequately to handle the problems that are unique in their own particular philanthropic work.

While workers in neuropsychiatry, social service workers, and directors of philanthropic organizations are well acquainted with the growth of the mental hygiene clinics, and the valuable knowledge gained from them, the general medical practitioner knows very little of them. In fact, he has less information about psychiatric subjects in general than the average psychiatric workers. Furthermore, the average family in noticing conduct disorders among its members usually first consults the family physician for advice and "first aid." In the greater number of instances, he is unable to furnish any. As the result, the family, in despair, often falls prey to illegal practitioners, the quacks and faddists. Moreover, the objective of all workers in the various phases of psychiatry is the consideration of all behavior disturbances as manifestations of a disease process, and the problem as medical with many sociological phases, to be sure, but not as legal. However, the methods of approach and activities and efforts of these different workers have been at times too isolated and too divergent, and there is need for a common meeting place. It is also to be remembered that there are many serious mental diseases whose first clinical manifestations are somatic ones. Very frequently a thorough serologic and physical study is essential in the arrival at a proper appraisal of the symptoms presented. Hence the necessity of a psychiatric clinic in a general hospital.

TREATMENT OF NEUROTIC CHILDREN

The psychiatric clinic must first concern itself with children. It has been shown by surveys of public school children that on the average from some 15 to 20 per cent. are abnormal mentally, either being feebleminded, epileptic or neurotic, or showing endocrinopathy. It is this small group of mentally abnormal children which provides the vast majority of our delinquency and dependence problems later on in life. Freudian psychology has long laid stress on the infantile psychic trauma as cause for psychoneurotic conditions. We must never lose sight of the fact that the child of today is the man of tomorrow. All workers in the field of human behavior agree that the pattern of the conduct of an adult is formed during infancy and childhood. The child is like a young flower. If properly cared for, and if environmental conditions are suitable for the particular plant, it will result in a wonderful blossom. If the average child receives reasonable care and attention, it will produce a full, wholesome and normal personality. If, on the other hand, the environment is unsuitable and unhealthy, and if the child does not receive proper care and attention, it will become a stunted, unhappy personality, with potentialities for developing into an adult dependent or criminal. As pointed out by Thom,[4] young children, because of their plasticity, suggestibility, imitativeness and love of approbation, are very susceptible to proper training. Working on these fundamentals, he established habit clinics for children in the preschool age. This may well be utilized by our psychiatric clinics in a general hospital, working in conjunction with the pediatric department or with its nutrition clinic. Because of their plasticity, their personality could be modeled and remodeled, and healthful habits can be easily developed. Habits in regard to somatic conditions, such as proper dietary habits, sleeping, bathing and elimination, may be easily formed, and these are of vital importance in forming personality. Because of their suggestibility, all sorts of unhealthy reactions may be occasioned in children by indiscreet words or actions on the part of the parents. Because of the child's imitativeness, just as it first learns to say "daddy" and "mamma," so will it soon imitate good or bad examples set by the parents and others in the immediate environment. Hence it must be pointed out to parents that no deception, no cruelty, no ill temper and no other similar traits be displayed in the presence of children. Because of their love of approbation, we must not hesitate to call attention to and give reward for every kindly and worthy act done by the child, so as to encourage proper character formation.

---

[2] Glueck, Bernard: Types of Delinquent Careers, Ment. Hyg. J. 1: 17 (April) 1917.

[3] Mental Hygiene Surveys of Cincinnati, St. Louis, etc., National Committee for Mental Hygiene, New York.

[4] Thom, D. A.: Habit Clinics for Children of the Pre-School Age, Ment. Hyg. J. 6: 464 (July) 1922.

The neurotic child[5] should receive a thorough study in the psychiatric clinic. Those presenting somatic disorders must be subjected to thorough scrutiny from every conceivable angle. Eye strain, bad teeth, malnutrition, discharging ears, anemia, irritating foci about the genitals, skin eruptions, skeletal abnormalities and cardiac and pulmonary disturbances must be actively combated. Signs of irritability, night tantrums, insomnia, enuresis and bad sexual habits may all be due to intestinal parasites. Those children displaying bad temper, lack of attention, day dreaming, excessive phantasy indulgence, undue timidity and shyness, inability to mix freely with children of the same age, undue precociousness, marked fear or anxiety, pathologic lying or stealing, marked psychomotor restlessness, pathologic sex activity, capricious dietary habits, spasms and fits must receive exhaustive psychiatric study. Intensive work during the last three years with the group classified as constitutional psychopathic inferiority has forced on me the conviction that the genesis of this perplexing condition is in faulty habit formation during childhood and infancy, and that it frequently manifests itself as neurotic conduct in childhood and adolescence.

Backward children should receive thorough classification and intensive study. As pointed out by the late Dr. Fernald,[6] mental deficiency cannot be diagnosed on a mere psychometric examination alone. According to his scheme of inquiry for clinical studies of borderline mental defectives, it is essential to have a physical examination, a family history, a personal development history, a history of school progress, an examination in school work, practical knowledge and general information, economic efficiency, social history and traits, and moral reaction of the patient, in addition to the psychologic tests, in order to establish an adequate evaluation of the limitations and possibilities of the mental defective in question. A mental defective with an intelligence quotient of about 60 per cent., but of a rather pleasant and agreeable personality and of cleanly habits, who has a working knowledge of general affairs and who, perhaps, has special mechanical ability, offers a problem entirely different from the one presented by a person of the same intelligence quotient who is given to cheating and lying, who is irritable and pugnacious, and who has no aptitude for any work. As pointed out by those who have worked intensively in the field of mental deficiency,[7] it is essential for the average mental defective to receive a proper vocational training in order to assure satisfactory adjustment in the community later on in life. The clinic could well help in training these mental defectives. Furthermore, it can look after those who have had special training in such institutions as that at Rome, N. Y., where, under the practical and humane policy instituted by an exceptional superintendent, proper habits and vocational guidance are given to the inmates, and under a system of colonization and parole, they are able to return to the community and become self-supporting, law-abiding members.

As previously pointed out, studies of school children indicate that approximately from 15 to 20 per cent. may be classified as definitely pathologic, and that this small percentage constitutes later on the majority of the delinquents, dependents and criminals. The residents of our penal and correctional institutions at one time or another passed through the schools of the country. From the children who are now enrolled in the various schools will come the next group of dependents, delinquents, criminals and mental patients. It is therefore of the utmost importance that we encourage the school authorities to bring to the clinic all those children who present the slightest deviation in conduct. While some parents might object to having their child brought to a mental clinic conducted by a state hospital or at some special institution or philanthropic organization, it is not likely that they would refuse permission to have the child examined in a dispensary attached to a general hospital. It would give the teacher working with her children a broader approach to her problem, and it would greatly increase her interest in her work in that it would vary its monotony by the solution of problems dealing with neurotic and backward children. It would thus enhance her value as a teacher by the acquisition of deeper insight into her own special educational tasks.

The group to which the psychiatric clinic in a general hospital should be of invaluable service is the epileptic. Those of us who have been working for years in neurologic and mental clinics have been impressed with the faithfulness with which these patients carry out our orders, and the punctuality in their attendance. The vast majority of them have good insight into their condition and are often embittered by their hard lot. They are often denied an education, and are refused employment because of the horror their disease inspires. When carefully managed, by proper dietary and medicinal agents, by adequate psychiatric approach to their problems, and by expert attention to their physical ailments, they can be made self-supporting and productive members of the community.

ADOLESCENT AND OLDER PATIENTS

The dangers attending adolescence must be met by the psychiatric clinic. Emotional conflicts that arise at this period are apt to cause anti-social conduct. The development of the sex instinct and the various changes in the endocrine glands that occur at this time of life are often the basis of behavior difficulties. Sex perversions may be entered into at this period of development. Feelings of inferiority must be combated, and these may be the cause for antisocial conduct. The family situation must be carefully gone over with the parents, and with the assistance of the trained psychiatric worker, any conflict that might arise from it must be combated. Glandular therapy at this period of life has proved of value in the hands of trained physicians. The psychiatrist must outline plans for substitute outlets to replace delinquent conduct. The instinctive and emotional craving so powerful at this time of development must be sublimated along socially approved channels.

It must be remembered that at this period also the various psychoses manifest themselves. Thus, the seclusiveness, excessive day dreaming, marked egocentricity, stubbornness, excessive shyness, inability to mix freely with members of the opposite sex and inability to make friends among one's own sex are danger signals of an impending schizophrenia. Marked fluctuation in emotional reaction, and disturbances in the field of psychomotor activity, lack of concentration and failure of attention may be forerunners of a cyclothymia.

---

[5] Campbell, C. M.: Nervous Children and Their Training, Ment. Hyg. J. **3**:16 (Jan.) 1919; The Mental Health of the Community and the Work of the Psychiatric Clinic, ibid. **1**:572 (Oct.) 1917; The Rôle of the Psychiatric Dispensary, Am. J. Insan. **71**:439 (Jan.) 1915.

[6] Fernald, W. E.: The Introduction of a State-Wide Public School Mental Clinic in Massachusetts, Ment. Hyg. J. **6**:471 (July) 1922.

[7] Anderson, V. V.: Education of Mental Defectives, Ment. Hyg. J. **1**:85 (Jan.) 1921.

The clinic must concern itself with the management of the psychoneurotic patient. It is this large group of mentally sick persons who, because of inadequate treatment from physicians, seek help elsewhere, and constitute the largest number of the clientele of the various faith healers, quacks and illegal practitioners. Their problems must be freely and openly discussed with them, and elementary principles of mental hygiene must be explained to them. They must be encouraged to face reality and responsibility. All forms of therapy, from simple suggestion to psychanalysis, can be successfully carried out in this clinic. It is amazing how common is the practice of coitus interruptus among people of intelligence, and how relatively frequently this factor is a cause of a severe psychoneurotic reaction. Instruction in proper sexual hygiene has cured many a person who has actually been incapacitated because of prolonged indulgence in this habit.

As the person approaches the climacteric, he is often in need of expert psychiatric advice. Unfortunate sex or marital relationship, disappointment in children, lack of achieving a satisfactory position in life, and unattained ambitions may all tend to upset the mental poise of the individual. Paranoid states, periods of depression, arteriosclerotic reaction, and economic failure may elicit pathologic reactions. The complaints of these persons are often physical in nature, and they usually seek advice and help from the general medical dispensary. The psychiatric clinic is indispensable in helping these people.

A good deal of psychiatric thought has recently been given to the subject of treating paresis with malaria. Tryparsamide also has received its share of attention. It is but right and proper that any agent which might be of value in combating this horrible disease should be carefully studied and utilized. But there are many who honestly believe that paresis is the result either of failure to detect early syphilis or of inadequate therapy. The psychiatric clinic in the general hospital, when working in conjunction with the genito-urinary, gynecologic and dermatologic departments, is in a position to make paresis an infrequent disease. Every offspring of a syphilitic person should be examined by the psychiatric clinic, not only from a behavior and psychologic point of view, but from the serologic as well. Every syphilitic patient should have a similar psychiatric survey. By a systematic, concerted plan of action, the number of syphilitic persons developing paresis could be reduced to a minimum. The clinic could also look after many paretic patients paroled from state hospitals. It might also treat those patients with paresis who would not require institutional restraint. The clinic should concern itself with the handling of juvenile paretic patients, not only in the arrival at a proper diagnosis and differentiation from the general group of feebleminded, but also in the institution of proper therapy.

A CENTER OF INFORMATION

The psychiatric clinic in the general hospital supplies the long felt want of a readily accessible source of information on general psychiatric subjects for the medical profession at large. It is surprising how limited is the range of psychiatric knowledge of the average general physician. Dementia praecox is the usual term applied to every conceivable form of mental aberration. To be sure, the medical schools at present offer thorough courses in psychiatry, but the average medical student's interest in psychiatry usually ceases when he passes his final examination in this subject. Later on, when in private practice he is confronted with a psychiatric problem, he is at a loss where to seek information and assistance. Moreover, the management of psychiatric problems usually has many sociological implications, so that it is necessary to have accessible data relative to social service agencies, charitable organizations, state hospitals, psychopathic hospitals and institutions for mental defectives, all of which could be furnished by this clinic.

The mental clinic in a general hospital is in a position to furnish information on psychiatric subjects that are not encountered in state hospitals. The deliria accompanying the various infectious diseases should produce valuable information regarding the personality of patients, as well as their subconscious trends. Pregnancy frequently precipitates psychoses, and, most often, transitory psychotic episodes which may not last a sufficient length of time to necessitate commitment to psychopathic hospitals. The various anemias and cardiovascular diseases are likewise often associated with interesting psychotic reactions. Arteriosclerosis in general, as well as some of the chronic nephritides, often supply interesting material for psychiatric study and research. It is common knowledge that brain tumors commonly fail to give the so-called cardinal signs, and first manifest themselves as obscure psychiatric states. There is a great need for an exhaustive study of endocrine diseases, especially in their histopathologic phases. The literature is literally flooded with clinical data on this subject, but it is poor in pathologic reports. It is opportune to mention in this connection the work of Mott [8] on the relationship between the gonads and the genesis of dementia praecox. By utilizing the finer histopathologic and staining technic, he was also able to demonstrate changes in the pituitary and the other glands in the deteriorating psychoses. Likewise, there is a great need for further research in brain pathology. The work of Southard [9] in this direction and lately that of Mott and his co-workers should prove a source of inspiration for further effort. Orton [10] recently called attention to the inadequacy of the present available staining methods for the demonstration of changes of physicochemical nature that occur in the brains of patients that have shown definite organic reaction. Epidemic encephalitis, in every phase and stage of the disease process, offers an inexhaustible source for study of pathologic mental reactions.

The country at large is at present aroused over the great wave of criminality that is sweeping over it. Everything is being suggested as a possible cause of this problem, from the greatest achievement of science to the very elements of nature itself. Impossible laws, bigoted reformers, the automobile, the motion picture, the radio, lack of religious training, and even the very rays of the sun have been enumerated among the possible causes. When one considers that approximately two thirds of the population of our penal and correctional institutions have been shown by surveys [11] to be suffering from a mental disease or defect that has a definite bearing on their antisocial conduct, it is but logical to expect psychiatrists to produce explanations for and offer solutions of this problem. Recent tragic events have shown the importance of the recognition of the various problems in childhood long before their manifestation in overt acts of antisocial conduct. These have elicited considerable unfavorable editorial comment from the lay press. Recently, psychiatric opinion has been subjected to severe criticism because of the diametrically opposed views which alienists have offered in some of the notorious medicolegal cases, and also because the poor person is frequently deprived of expert psychiatric opinion that is purchased by the rich. The first criticism can be combated by merely calling attention to the fact that difference of psychiatric opinion as compared with difference in legal opinion is like an harmonic symphony compared with a rhapsody of incoherence. The second criticism may ably be combated by the psychiatric clinic in a general hospital, which would be in a position to offer expert advice to the poor.

---

[8] Mott, F. W.: The Reproductive Organs in Relation to Mental Disorders, Brit. M. J. **1**: 463 (March 25) 1922; The Genetic Origin of Dementia Praecox, J. Ment. Sc. **68**: 333 (Oct.) 1922; Histological Examination of the Pituitary Gland, ibid. **69**: 297 (July) 1923.

[9] Southard, E. E.: On the Focality of Microscopic Brain Lesions Found in Dementia Praecox, Arch. Neurol. & Psychiat. **1**: 172 (Feb.) 1919.

[10] Orton, S. T.: Negative Histological Findings in Experimental Organic Processes, Am. J. Psychiat. **4**: 599 (April) 1925.

[11] Mental Hygiene Surveys of Cincinnati, St. Louis, etc. Raphael, Theophile, et al.; Sociopsychiatric Delinquency Studies, Ment. Hyg. **8**: 452 (April) 1924.

The presence of the psychiatric clinic in the general hospital is assured. From every part of the country,[12] from our immediate neighbors, such as Canada,[13] to our distant friends in Australia,[14] are published the reports of the workings of these clinics. The success and failure of any one given clinic will depend on its personnel. The director of the clinic must be a psychiatrist of wide experience and special aptitude for his work. The study of mental disorders requires a long apprenticeship, and there are no shortcuts for acquiring psychiatric knowledge and experience. A six months' course of training in a foreign country in one of the many modern schools of psychology or psychopathology is surely inadequate to enable a man to assume leadership of such a clinic. A properly trained psychiatric social service worker is likewise indispensable for the success of the clinic. A properly trained psychologist is a very desirable addition to the personnel. Properly kept records and proper clerical assistance will enhance the value of the clinic. The following few cases illustrate the necessity of the psychiatric clinic in a general hospital:

REPORT OF CASES

Case 1.—C., a man, aged 42, referred to us by the medical service for a neurologic opinion, had been operated on for a right genuvalgus in November, 1924. The operation was successful, but since then the patient had been complaining of pains in the legs, backache, headache and insomnia. He was given a thorough physical survey, and nothing was found to be pathologic. He was given physiotherapy treatment for three months, but that did not ameliorate the symptoms. Serologically, the examination was negative. The patient entered the clinic room in a quiet, orderly manner, was very well dressed, and seemed to be a man of affairs. In fact, his appearance was such as to make us wonder why a man of his type should come to a public clinic. The neurologic examination was negative. It was quite obvious that his complaint was functional in character. We frankly told him that nothing was found in his physical condition that could account for his symptoms. We then asked him whether he had any worries or troubles at home. He replied that his difficulties were such that it would take too long to relate them. He was assured that he could have all the time he needed, and that the purpose of the clinic was to help just such cases as his. He then gave the following story:

He was born on a farm in New Jersey. He had a country high school education. At the age of 18 he secured employment as clerical assistant in a trust company in Manhattan. He was of rather quiet, reserved manner and of good habits, was regular in his church attendance, and had never had any conflicts with the law. He had a puritanical training and had never indulged in illicit intercourse, nor did he ever take alcoholic beverages. At 25 he married a girl three years his junior and in five years had a family of three children. Eight years before examination his earning capacity was $40 per week. He stated that his trouble commenced then. An evangelist came to the village where the patient was living and his wife took an undue interest in the evangelist's activities. She refused to cohabit with the patient, saying that such an act was entirely too animal and vulgar. The patient, however, kept at his work and supported his family. Six years before admission, while diving in shallow water, the patient's foot struck a rock, and he hurt his big toe. This gave him considerable annoyance, especially during rainy and inclement weather. Two years before examination on returning home from his work, he found that his wife had left him, taking with her the two younger children and all the furniture. The oldest child was at that time spending a vacation on the patient's sister's farm. One week later he was summoned to court on a charge of desertion. It required two days to settle the legal complication of the summons, and he therefore absented himself from his position. A week later he was arrested on the same charge, and he remained in jail for a day. This resulted in the loss of his position. A separation was agreed on, his wife taking the two younger children with her, the patient agreeing to give her all of his salary except $3 a week for his immediate personal expenses. He found that he could not live up to this agreement, and he was again arrested. He then moved to New York, where he boarded in one of the cheap hotels. He had to take a clerical position at a salary of $25 a week. He had not seen his two younger children for about six months, when he was informed that his second son had pneumonia. He then began to experience intense pains in the toe that he had injured six years before. Finally he consulted several physicians, and he was advised to have operative intervention. The operation was successfully performed. While in the hospital he received a bill amounting to $110 from a contagious disease hospital in New Jersey for treatment given to his daughter. He then learned that his wife had entered a training school for nurses and boarded out the two younger children; his daughter contracted scarlet fever, and she was then removed to a contagious disease hospital. When he was discharged from the hospital he visited the child, and found her in a critical condition. His own illness seemed to have assumed undue significance. He could hardly walk because of the pain in his right foot. He could not do his work satisfactorily, and his superior officers often called his attention to it. He kept seeking relief from his pain, but without any avail. He then complained of terrific suboccipital headache. He lost a good deal of sleep about his children, and often pondered over his own helpless lot. After the interview, which lasted about one hour, the patient said: "You know, Doctor, I feel so much better now. You are the only one to whom I ever told this, as you are the only one that ever seemed to be interested in me. My headache seems to be gone. I wonder if it isn't my personal affairs that are troubling me rather than my foot?"

Case 2.—Mrs. J., aged 38, referred to us by the medical clinic for an opinion, had been attending the clinic for a month complaining of belching, inability to eat, constipation, and general abdominal distress. She walked into the clinic in a typical depressed manner; her appearance was dejected; her gait was slow; her steps were measured, and her mood was definitely depressed. She showed a definite retardation and psychomotor inhibition. It was obvious from the appearance of the patient that she was suffering from a depressed phase of manic-depressive psychosis. The physical examination, serologic findings and roentgenograms of the gastro-intestinal tract were negative. Neurologically she showed nothing of significance. She was accompanied to our clinic by her husband, a friend of the family, Mr. A., and her sister. Her sister and her husband stated that she had been acting in a dejected manner for a period of some two months; had become more or less down-hearted, and had lost interest in her home and in her children, and that she displayed unusual antagonism to her two younger children, who had been her favorites. They stated that she had had a similar attack fifteen years before, when on her honeymoon trip. That attack lasted for five months. When interviewed, the patient gave the following story: She came to this country from Holland in 1909 and resided with her married sister. There she met Mr. A., who boarded with the sister. She fell in love with him, but he did not reciprocate her affection. She worked in a factory, and she was able to support herself fairly satisfactorily. She was, however, disappointed in not being able to win Mr. A.'s love. When Mr. J., her present husband, proposed marriage to her, she accepted him in a spirit of proving to Mr. A. that she could live quite well without him. They took a trip to Holland to spend their honeymoon in their native land. When two days at sea, she suddenly realized that she had married a man whom she did not love and that the future had very little in store for her. She became sad and downhearted, cried a good deal, and had frequent outbursts of excitement. In one of these, she took off her wedding ring and threw it into the sea. Because of her mental condition, they immediately returned to America. After about five months her condition gradually cleared, and she regained her former natural poise. A child came, and her time was taken up in rearing it. Her husband was working steadily, but did not earn sufficient to enable them to live comfortably. They then decided to have some one board with them, hoping thereby to increase the family income. Mr. A. was therefore invited to live with them The patient freely and spontaneously stated that she had really planned to have Mr. A. live with them in order that she might be close to him. The inevitable soon followed. She claimed that she had absolutely no love for her husband, and was frigid sexually toward him. To Mr. A., however, she was easily aroused, and she was certain that he was the father of the two younger children. This condition continued until the early part of 1922, when Mr. A. had a definite psychotic attack and was committed from the psychopathic ward of Bellevue Hospital to the Central Islip State Hospital. After a year he was discharged from that institution and returned to live with them. He had, however, become sexually impotent, but this did not prevent him from indulging in all sorts of sexual aberrations with the patient. Her attitude toward him since his state hospital residence had changed somewhat. It had assumed an iconoclastic tone. About the middle of May, 1924, she began to brood a good deal, she had come to realize that her life had been an empty one—that she had deceived her husband, and that her lover was an insane person. She had lost her appetite, had all sorts of gastric sensations, could not sleep, and lost interest in her household. She had become antagonistic toward her two younger children, feeling that they were the offspring of sin. To her husband and to her lover she would complain of pain in the abdomen and loss of appetitite. She was taken by them to the general medical clinic. After a months' treatment there her condition gradually became worse; she entertained ideas of suicide. After consultation with the family, she was committed to the Kings Park State Hospital for treatment. In this connection it might be interesting to note the reactions of the two men who had accompanied her to the clinic. The husband felt that he could not pay for private hospital residence, and that he was quite willing to have her sent anywhere where she might recover her mental health. Her lover insisted that she be sent to a state hospital. He felt that the state hospital had done him a lot of good, and if it had been good enough for him there was no reason why it was not good enough for the patient. Her sister insisted that Mr. A. had a better idea of the entire situation; as she naively expressed it, "Friends often can do more than one's husband."

---

[12] Oberndorf, C. P.: The Psychiatric Clinic and the General Hospital, M. J. & Rec. **121**:7 (April 1) 1925.

[13] Clarke, C. K.: A Study of Five Thousand Six Hundred Cases Passing Through the Psychiatric Clinic of the Toronto General Hospital, Canad. J. Ment. Hyg. **3**:11 (July) 1921.

[14] A Psychiatric Clinic in Sydney, Brit. M. J. **1**:697 (April 21) 1923.

Case 3.—F., a girl, aged 17, brought by a worker of the Jewish Council for Women, for psychiatric examination, accompanied by her father, was native born and had a common school education and one year's training in a commercial school. She was always of a lively, cheerful, happy disposition, and well liked by her friends and her teachers. One year before she had suddenly disappeared from home and her father was informed that she had been arrested, having been found in a room with another girl and a young man. She was put on probation and paroled to the custody of her father. She got along fairly well—had met and married a respectable, hard working man five years her senior, who had been informed of her delinquent acts. He married her in spite of this and provided quite satisfactorily for her. One week after her marriage and about two weeks before her visit to the clinic, she had suddenly left her home and remained out late at night, and she became more boisterous and unmanageable. Her father appealed to the neighborhood charity organization, and its worker brought her to the clinic. On examination she was quite playful, fairly distractible and flighty, overactive and quite jovial. She spoke very lightly of her escapade, and bragged about the ease with which she could capture men. It was quite evident we were dealing with the manic phase of a manic-depressive psychosis.

Case 4.—S., a boy, aged 11, brought to the clinic by his father for advice and treatment, was native born, full term, and of normal development. At the age of 8 he had an attack of cerebrospinal meningitis. After his recovery it was found that he was given to frequent spells of irritability and excitement, and had occasional convulsive seizures. He could not be kept at school and could not be managed at home. In a period of two and one-half years the parents had spent $6,000, all their life's savings, in caring for this child. They had visited eminent physicians in New York, Boston and Chicago. For one year he had been receiving treatment from a chiropractor, who had given him electrical treatments and spinal adjustments. The parents stated that all the medical men had advised commitment to a state institution either for epileptic or for feebleminded patients. However, they kept him out of institutions. When their resources became exhausted they brought him to the clinic for treatment. On examination it was found that the patient had residuals of his meningitis, and that he showed definite organic neurologic signs. Psychometric examination gave him a rating of an intelligence quotient of 50 per cent. It was pointed out to the family that it was futile to keep him away from an institution. They finally agreed to apply for institutional care.

202 New York Avenue, Brooklyn.

ABSTRACT OF DISCUSSION

Dr. H. G. Brainerd, Los Angeles: Dr. Sands struck the keynote of things: to have a psychiatric hospital or a psychopathic hospital, if you choose, in connection with the general hospital, where you may make use of the laboratories and the specialists in those hospitals. The place where we get information in regard to these first is in the public schools, and if the public school has a place to which to refer the unusual child, whether it is one with high intelligence and marked behavior abnormalities, or whether it is one who is distinctly deficient, that matter can easily be determined. And the census as taken by the Census Bureau in 1923, as they gathered the facts, showed that there were now in the public schools of the United States, between the ages of 7 and 15, 900,000 defective children. Of those, a few show the behavioristic conditions of the high intelligent quotient, and they furnish our great criminals. The great bulk of them, however, come under the heading of those who furnish our petty criminals. Examination of inmates of poorhouses, of state penitentiaries, of juvenile courts, and of the houses of prostitution, where investigated, show that the greater number of the inmates of those institutions come from this mass of 900,000 that are found in our public schools. That condition can be rectified only when we can have a properly conducted clinic for having these carefully gone through, their physical condition looked after, if possible, if there is something there that can be corrected, as there is in many cases. If we put that child right, we are preventing making a criminal out of him, and if we do not do that, the criminal population will grow with ever increasing and mounting importance.

Dr. William J. Hickson, Chicago: The medical profession is lagging behind the legal profession in this criminologic work. I had the honor of founding and establishing the psychopathic laboratory of the municipal courts in 1914, the first laboratory in this country, or in the world, devoted exclusively to the practical application of psychiatry to law. An environmental clinic for the study of problem children had been established in Chicago in the juvenile court, but we were the first ones to establish a laboratory that handled all classes of cases. In a big court like the Chicago court, where we have specialized branches, we get practically all problem cases that come into the school, and we get a very large amount of material not only from the children, but also from the parents. When we started to commit cases to the psychopathic hospital, they were turned out wholesale. I think in one year we had a record of twelve murders committed by cases we sent to the psychopathic hospital, which they agreed with us were mental cases. At the present time we are committing 2,000 cases a year as insane from the municipal court, and we rarely have a case in which the staff at the psychopathic hospital is not in agreement with us. We cannot begin to handle all the cases sent to us by the judges. We had been established in Chicago less than a year, when we showed that we had a certain amount of feeblemindedness that was responsible for crime. They gave us a law at once, without any haggling, giving us the power to commit feebleminded directly from the court, and to revise the local law on the treatment of feeblemindedness. I believe the medical profession should become active and get into this field, or else the sociological agencies will take it away from us and we shall entirely lose this field, as we have lost many others, through neglect.

DR. IRVING J. SANDS, Brooklyn: The psychiatric clinic in the general hospital could quite nicely look after the epileptic patients. The vast majority of epileptic patients do not require intramural institutional care. Dr. Gordon recently brought to every one's attention the large number of mental cases that do not require state hospital or asylum treatment. They are cases that primarily present a somatic disease which is complicated by an abnormal mental reaction. They are primarily psychotic and not insane problems. Every physician is also a citizen, and, as such, is duty bound to participate in civic affairs. I do not blame the legal profession for taking matters into its own hand because the medical profession does not take any initiative. In the greatest number of instances, physicians remain dormant even in matters that have a direct bearing on medical matters. They let others look after their interests. When they realize that they have been neglected, they complain. When they will more actively demand what is due them, things will be different.

PLAGUE—PAST, PRESENT AND FUTURE *

B. J. LLOYD, M.D.
Assistant Surgeon General, U. S. Public Health Service
WASHINGTON, D. C.

In violation of orthodox technic, I have selected the broad, general topic of "Plague—Past, Present. and Future" as the title of a paper that must necessarily be brief. I had fully intended to review the literature of the subject before attempting to present this paper, but circumstances beyond my control made this impossible. It is for this reason that so much of what I shall say here is based on personal contact with the disease and association with other plague workers.

HISTORY

Plague has a most pernicious past; a present that is bad; and a future that seems to say to civilized man, "Your money or your life." It is for man to say whether, in paying tribute to plague, it shall be a toll of lives or a tax in money, and if the latter, how much shall be paid and how payment shall be made.

Plague is a disease of great antiquity. Papon,[1] who made a very comprehensive study of records of pestilential diseases of various kinds, gives forty-one epidemics of plague as occurring in the course of 1,500 years before the Christian era, mostly among the peoples of the countries bordering on the Mediterranean Sea; 109 during the first 1,500 years of the Christian era, and forty-five from the year 1500 to 1720.

We are all more or less familiar with the history of the epidemic of the fourteenth century, known as the "black death," in which chroniclers of that day boldly assert that from two thirds to three fourths of the world's population died.[2] We read how the disease continued to devastate Europe particularly during the fifteenth, sixteenth, and seventeenth centuries; how the "Great Plague of London" in 1665 killed 70,000 people in a population of less than half a million. We read many other interesting and even terrorizing accounts of the havoc wrought by this disease, and we conclude that hundreds of millions, possibly billions, of human beings have lost their lives from plague—some fifteen millions perhaps in the last three decades, and there were a quarter of a million cases of the disease last year; but the points in the history of the disease to which I wish to invite attention are the following:

1. The early association of rodents with plague.
2. The presence of both pneumonic and bubonic forms of the disease in many epidemics.
3. The periodicity of plague which is unlike that of any other disease.

In the past, apparently, plague has swept over whole continents, dwelt with certain peoples from a few years to a century or more, and then has completely disappeared to return again after a lapse of decades or of centuries; why we do not yet quite know, but there must be a reason.

It is customary for those who write of plague as a general topic to tell just when and where the present pandemic started. After somewhat extensive reading and observation for a quarter of a century, I am almost as confused on these two points as I am on the question of who started the World War. Historians usually start the present pandemic off in Hong Kong in 1894, possibly because Kitasato and Yersin discovered the bacillus in Hong Kong that year. The disease is then traced hither and yon, through India, where it killed perhaps 10,000,000 people in less than twenty years; then to other parts of Asia, including Japan, to the Philippine Islands, Europe, Africa, Australia, Hawaii, and finally to the Western Hemisphere in 1899, and to the United States in 1900.

The behavior of plague reminds me of the days when as a boy I used to chase moles. Sometimes I would see their excavations or tracks, as I called them, which soon ended in a hole in the ground; sometimes I would see evidence of the mole at work; and occasionally I would catch one. Similarly the tracks of plague are for the most part covered, but we are learning to uncover them.

EPIDEMIOLOGY

I can discuss only very briefly the epidemiology of plague. Among the conditions and factors which are involved in the propagation of this disease, and which should be studied anew in each locality in which plague appears, are these:

1. Susceptible rodents.
2. Ectoparasites of man and animals, particularly fleas, but also lice and bedbugs and possibly other suctorial insects. The seasonal prevalence of the dominant species of fleas and their ability to propagate at low temperatures should be determined.
3. Housing conditions, including types of buildings.
4. Condition and construction of grain warehouses.
5. Condition and construction of houses in which food is stored, manufactured, served or distributed.

---

* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Papon, J. P.: De la peste en époques mémorables de ce fleau.

[2] Encyclopedia Britannica.

6. Condition and construction of wharves.
7. Condition and construction of stables and barns.
8. Garbage and its disposal.
9. Maritime and, to a less extent, other forms of transportation and travel of persons and of foodstuffs, particularly grain.
10. The human factor in the spread of pneumonic plague.
11. Carriers of plague, rodent and possibly human.
12. Endemic centers of rodent plague.

I shall refer to some of these topics under the head of control measures. Let us note here the fact that the two types of the disease, the bubonic and the pneumonic, generally run true to form, the bubonic spreading through the agency of the flea, the pneumonic spreading by direct intimate contact from person to person. But the epidemics of pneumonic plague are of rodent origin so far as we can tell; and one is justified also, I think, in asking whether it is not some other rodent rather than the rat that is commonly involved in the origin of pneumonic outbreaks. Furthermore, I think we may surmise that, free as modern man is from parasites, plague could not exist in civilized countries were it not for the rodent host. Finally, it may be said that while pneumonic plague has not in recent times been at all comparable to the bubonic type in its ravages, outbreaks are by no means rare, and in Manchuria at least it assumed epidemic proportions.

BACTERIOLOGY OF PLAGUE

The laboratory diagnosis of plague requires very little equipment and is not difficult; yet the bacteriologist who has never worked with the disease may find himself in most perplexing circumstances if he does not know how to obtain a pure culture of the organism. There will be times also when the bacilli are so few in number, both in man and in the rodent, that they cannot be seen in the tissues and may be obtained only by animal inoculation.

I have never seen a case of pneumonic plague in which I could not make a provisional diagnosis by a simple examination of the sputum stained, preferably with carbolthyonin. Confirmation in animals follows, of course, as a routine procedure.

In the bubonic form of plague in the living patient, an aspirator with a conveniently large needle may be used in an attempt to secure sufficient material to enable one to obtain the organism. This material should be taken from the lymph node showing the greatest amount of inflammatory reaction. I know of no organism that may be obtained from an enlarged node, or from the blood, *of a living human being* that looks like plague but isn't. Conversely, after death, one may find, particularly in rodents but also in human beings, any number of organisms that look like plague, but are not. Fortunately, most of these are not pathogenic, and the few that are may usually be readily distinguished from *B. pestis.* Blood may be taken from a vein in addition to the material from a lymph node. In septicemic plague (during life), blood is naturally about the only source from which one may hope to obtain the organism.

On the death of a patient suspected of having had plague, the organisms should be sought in the enlarged lymph nodes, the spleen and the heart's blood. Relatives and friends will often consent to a small incision for the removal of a lymph node when they would protest against a necropsy. Failing to obtain permission to perform a necropsy or to extract a lymph node, sufficient material for diagnostic purposes may be obtained from the liver by needle puncture and aspiration, provided a large needle is used.

In examining material from rodents, one may select an enlarged node or a bit of spleen. For the examination of large numbers of rodents in which there are no macroscopic or microscopic evidences of plague, I had occasion a few years ago to devise a system of mass inoculation,[3] which has been used very effectively by Williams in New Orleans, and which I believe is common practice in several other laboratories. In mass inoculation, an animal (a guinea-pig) is inoculated with small bits of material from some ten or fifteen spleens, and if plague develops the spleens are then differentiated by inoculating singly. Plague will easily keep in tissue in the icebox for ten days or longer.

Having obtained material suspected of being plague bearing, how is the diagnosis made? Five-tenths cubic centimeter of blood (if blood is used) may be dropped into a flask containing from 50 to 100 c.c. of bouillon made slightly alkaline to litmus, and a like quantity may be used to inoculate a guinea-pig intraperitoneally. Plague, fresh from human or animal tissues, does not always grow well on mediums, and the reaction of the medium is important.

In making a bacteriologic diagnosis of plague from postmortem tissue, either human or animal, I would recommend the following procedures:

First, cultures may be made if one chooses; but, taken after death, cultures will generally be found to be contaminated, and while plague may be obtained in pure culture by plating, I regard plating as inconvenient, somewhat dangerous, and unsatisfactory. I prefer to inoculate three guinea-pigs, one intraperitoneally, one subcutaneously or by scarifying the skin and rubbing on infected material, and one by simply clipping the hair over the abdomen or thigh with a pair of scissors and rubbing the material on the unbroken skin with the flat side of a dull knife or spatula.

The object of the intraperitoneal inoculation is to enable one to make a quick provisional diagnosis. Plague will usually kill intraperitoneally in from twenty-four to forty-eight hours; and though there is sure to be contamination, the gross and microscopic pictures are almost invariably of such a nature as to enable one to make a provisional diagnosis with confidence. In case a guinea-pig inoculated intraperitoneally from postmortem tissue does not die promptly, plague, in my opinion, may be excluded. It is useless to attempt to secure a pure culture of plague from an animal inoculated intraperitoneally with contaminated material.

The pig that has been inoculated subcutaneously or by scarification may die before or after the pig inoculated on the unbroken skin. It will live considerably longer than the pig inoculated intraperitoneally, say from three to five days or, perhaps, even nine days, rarely longer. The lesions found in such an animal will, if plague is present, be quite characteristic, presenting the typical subcutaneous injection of the capillaries, enlarged lymph nodes in the vicinity of the inoculation, usually with edema, and possibly hemorrhages surrounding the node. A small quantity of ropy peritoneal fluid will be found which generally shows characteristic bipolar organisms, usually in pairs and short chains. The spleen will be enlarged, dark in color and will usually contain some whitish necrotic areas, provided the animal has died within from three to five days. If life is prolonged to the eighth or ninth day, the spleen may be small, pink, rather hard in con-

---

3. Lloyd, B. J., in Annual Report, U. S. Public Health Service, 1914.

sistency, and with many whitish necrotic areas. Organisms are usually plentiful in the tissues of animals that die early, but they may be few if the animal survives seven to ten days or longer. Pure cultures are seldom obtained from pigs inoculated with contaminated material subcutaneously.

But the secret of easily obtaining a pure culture of plague lies in the method of inoculating on the unbroken skin, though I have no quarrel with the man who prefers to do it some other way. This method kills about as often as subcutaneous inoculation, so that one rarely has to make a second inoculation. In temperate climates the heart's blood of a pig that has been inoculated on the unbroken skin will usually give absolutely pure cultures if these are made shortly after the death of the animal. In tropical, and even in temperate, climates I have sometimes been obliged to chloroform the animal before death actually takes place, in order to avoid organisms that might reach the blood by antemortem invasion. A good time to chloroform the animal is when it lies down on its side, as such animals practically always do just before death.

In order to judge of the purity of a culture of plague, it should be planted on agar that contains no water of condensation, and also in bouillon. On a moderately dry agar slant, there will be obtained the small, discrete colonies, having the so-called ground glass appearance. Plague rarely produces cloudiness, so that if the bouillon culture is cloudy to any marked decree, one may feel reasonably sure that the culture is not pure. Occasionally, a diplococcus will be found in association with plague and the bouillon will not be cloudy, but there will usually be a ropy precipitate instead of the whitish granular precipitate of pure plague in the bottom of the tube. The diplococcus, of course, can easily be recognized by staining. Whenever I find my cultures contaminated, I usually return to the unbroken skin inoculation.

Once plague has been obtained in pure culture, its identification is easy, and I shall not pursue this phase of the subject further, except to say that the organism, though usually of typical morphology, is pleomorphic. I recall a necropsy on the first human case of plague that occurred in Guayaquil, Ecuador. Although the gross pathologic findings were as typical as they could possibly be, and although the spleen and lymph nodes were teeming with typical coccus ("doughnut") forms of plague organisms, I was unable to find a single bacillus, although I searched for two hours. On mediums and in animals, the organism at once reverted to the usual forms. I have often seen the "doughnut" form of *B. pestis* in tissues, but such forms have usually been few.

PROPHYLAXIS (BIOLOGIC)

Attempts to immunize man against plague have not been very satisfactory. In case of known inoculation, as in performing a necropsy, fresh antiplague serum should be given daily until all danger is passed, but this is early treatment rather than prophylaxis. The injection of killed cultures of *B. pestis* produces unquestionably, I think, a certain degree of immunity to plague for a time, but, except under conditions such as may be found in India, for example, I doubt whether the use of such injections is worth while.

TREATMENT OF PLAGUE

In my humble judgment, there is at present practically only one treatment for plague that merits our serious consideration, and that is the use of *fresh* antiplague serum in large doses. By large doses I mean from 80 to 100 c.c. for an initial adult dose, and it is perhaps better to give it intravenously. Subsequent doses may be somewhat smaller, but not less than 40 c.c., and should be repeated every twelve hours until all danger is passed. It is not necessary to give every dose intravenously, except perhaps in the pneumonic form of the disease.

I am not unmindful of the fact that there are many adverse reports on the serum treatment of plague, including the treatment of cases of the bubonic type, and that there are outstanding men in the United States who do not regard this form of treatment very highly. However, there is much in the literature that is favorable, and I sometimes wonder whether some of the poor results obtained may not have been due to the use of serum that has been kept too long and perhaps at a too high temperature.

In the years 1908 and 1909 there were treated by myself and under my supervision (except for the cases that occurred in November and December, 1909) 1,491 cases of bubonic plague in Guayaquil, Ecuador. At the time these treatments were given, they were administered with the idea of saving the lives of the patients rather than as a test of the efficacy of antiplague serum. I checked up as best I could, with the aid of several colleagues, the results of the administration of the serum. We concluded from our record that: (1) patients with bubonic plague who did not receive serum during those particular years gave a death rate of approximately 60 per cent.; (2) the death rate among those that received serum, including some that were almost moribund, was about 33 per cent., and (3) where treatment could be given within from twenty-four to thirty-six hours of the onset, the mortality might be reduced to 18 or 20 per cent. I do not at this time have the records of those that were treated with serum and those that were not; but during the first year (1908) there were at least 200 out of 588 patients that did not receive serum because we did not have it. The mortality for that year was 46.6 per cent. During 1909 there occurred 903 cases with 320 deaths, a mortality of 35.44 per cent. There were very few patients in 1909 that did not receive serum, but not all of them got it early. From Jan. 1, 1909, to Dec. 31, 1923, there were treated in the plague hospital in Guayaquil 6,213 cases of plague with 2,346 deaths, a mortality of 37.36 per cent. I judge that 90 per cent. of these patients received serum, but many of them, of course, did not receive it early in the course of the disease.

In 1916 there were outbreaks of plague in Ambato and Alausi, Ecuador. Of thirty-six patients treated in the hospital at Ambato, who presumably received serum, thirteen died, a mortality of 36.11 per cent. There were five deaths and one recovery among the known cases that were not treated at the hospital. In Alausi, during the same year, there were treated in the hospital, presumably with serum, sixty-nine patients with plague, with eight deaths, a mortality of 11.59 per cent.; while of the ninety-eight known cases in which the patients did not go to the hospital, all died. How many cases there were that escaped detection is not known.[4]

The foregoing data are taken from the annual reports of the department of health of Ecuador for the years 1910 to 1923, inclusive. While these reports do not segregate patients with plague that were treated with serum and those that were not so treated, it is everywhere intimated that serum was used wherever it was possible to reach the patient. Recovery of one case of proved pneumonic plague is reported and is attributed to the use of large doses of serum intravenously.[5]

---

[4] Informe del Director General de Sanidad Publica Guayaquil, Ecuador, 1916.

As a further evidence of the effect of serum in the treatment of plague, I recall several instances of plague in pregnant women who were successfully treated with serum and who did not abort or miscarry. I do not recall any case of survival of the fetus in a plague-stricken mother in whom serum was not used. There was one case under my care of a woman who gave birth to a normal healthy baby during the course of the disease. This baby was born in the hospital and nursed by the mother without any inconvenience and without developing plague.

On one occasion I received a consignment of serum that had been kept for about six months on the isthmus, under what conditions I do not know. I questioned the advisability of using this serum when it arrived, but as serum was scarce and somewhat hard to obtain at the time in quantities required, I decided to use it. After losing several patients, who I thought should have recovered, I discontinued its use and returned the quantity remaining to the isthmus, saying that it was of no value.

I know of no experiments that have been performed, designed to determine how long antiplague serum will retain its potency at low temperatures. When the Pasteur Institute began to put out antiplague serum, its literature contained the statement that liquid serum should not be used after one year, but that dried serum would retain its potency for two or three years, and that the latter should not be given intravenously.

One final word with regard to antiplague serum: one should insist that his dealer tell when the serum was drawn and use the most recently drawn serum obtainable.

QUARANTINE MEASURES; PLAGUE ON VESSELS

Manifestly, it is impossible in a brief paper such as this to treat extensively of quarantine measures. In pneumonic outbreaks it is, of course, necessary to restrict the movements of persons who may have been exposed to the disease. Wherever rodent infection exists, it is important that every effort be made to prevent this infection from being transported. In the United States, rats have shown but little tendency to travel by rail in sufficient numbers to spread bubonic plague, but the constant transportation of rats on vessels in international commerce has produced a widespread distribution of this disease. Perhaps it is not too much to say that 90 per cent. of the vessels that arrive at ports in the United States from foreign countries, if we may except vessels from Canadian ports, have within the sixty days immediately preceding their arrival touched one or more plague-infected ports. Rat plague has been detected on hundreds of vessels during the last thirty years and probably has escaped detection on a thousand others. Grain cargo is, I think, unquestionably the greatest factor in the transportation of rats, and incidentally of plague, from one country to another.

We are all familiar with the efforts made by health authorities to kill rats on board vessels calling at infected ports. Perhaps the greatest improvement that could be made in our present maritime system would be to induce builders of vessels to construct them as nearly rat proof as possible. Certainly, there is great room for improvement in this respect on the average vessel.

EXTERMINATION OF SUSCEPTIBLE RODENTS OTHER THAN RATS

In the United States, we have an endemic center of plague in the ground squirrels of California. For years, the Public Health Service and the people of California have conducted strenuous campaigns against these squirrels without either exterminating the squirrels or eradicating plague. If the land appropriated by these squirrels ever becomes valuable enough to be cultivated intensively, the human population on it may increase sufficiently to exterminate the squirrel, or, maybe, lethal gases may be developed that will enable us to kill them all. We should at least maintain squirrel-free zones around centers of population to prevent squirrels and rats from intermingling.

RAT-PROOFING AND RAT EXTERMINATION

I am tempted to say that permanent rat proofing is almost the only effective measure against plague in cities of any considerable size. I am speaking now of the task of eradicating plague permanently. The most efficient and at the same time the most economic rat-proofing campaign that could be conducted against plague is one that begins from twenty-five to fifty years prior to the advent of the disease. By this statement I mean that it is relatively inexpensive to construct buildings of all kinds in such a manner as to favor a minimum development of rat population, provided this is undertaken when the buildings are being erected. It is usually quite an expensive procedure to rat-proof buildings after they are up. There are two main principles to be observed in the rat-proofing of structures: In the case of frame buildings, such as residences, these should be from 18 to 24 inches off the ground, with skirted underpinning in cold climates, and free underpinning in warm climates. This is the so-called rat-proofing by elevation. If there is a basement, both walls and floors should be of concrete of sufficient thickness to stop the rat. In addition, all "dead" or hollow spaces of walls or in ceilings should be eliminated. The second principle is that of requiring concrete retaining walls and concrete ground floors, basement and basement walls in all buildings that are not elevated as described.

FUTURE OF PLAGUE

Present indications are that plague will remain a menace to the inhabitants of this and other countries indefinitely, or, if you ask me to express this in time, I would say for many decades, perhaps for several centuries. Barring the possibility of a serious epidemic of pneumonic plague, which I hope is exceedingly remote, I do not believe that plague will ever be allowed to become a serious factor in our morbidity and mortality rates in the United States. No doubt, however, it will continue to appear from time to time and probably will, within the next fifty to a hundred years, be found in many places both here and abroad where it is not now known to exist.

Intensive studies might well be made with a view to devising a system which would enable us to reduce the expenditures of plague campaigns to a minimum and which would at the same time produce a maximum of benefit. Our seaports particularly should all begin to require rat-proof construction of all new buildings, as has been done for years in San Francisco and a few other cities.

---

[5] Informe del Director General de Sanidad Publica Guayaquil Ecuador, 1914, p. 29.

ABSTRACT OF DISCUSSION

Dr. F. M. Johns, New Orleans: Any one who has followed the history of plague will be reminded that in a seaport city it is simply a question of time, it may be ten or fifty years, when it will break out; and it is wise to keep in mind the progress of measures directed against the disease. The only question that probably requires some comment in Dr. Lloyd's paper is the treatment of plague with serum. I think I can agree with him that in the review of the literature the only treatment of bubonic plague is with the antiplague serum. The result of serum in cases that are diagnosed quickly is probably just as spectacular as with any other serum treatment. I see that Dr. Seemann is present and would like to have him discuss the cases he treated in New Orleans. We had several patients with temperatures of 105 or 106 F. and almost moribund; serum was administered and in a few hours the temperature dropped and the patients made uneventful recoveries. Naturally, the infection varies. Some epidemics seem to have a more virulent type of organism, but I am satisfied in my own mind that the majority of cases, if treated promptly with fresh serum, would be greatly benefited. The obtaining of serum is also a matter of great importance. The epidemic usually breaks out in a community with probably no provisions having been made for the obtaining of serum. The variety administered is probably several years old. I should like to ask Dr. Lloyd his opinion of the various forms of serum used, also the keeping qualities of serum; in other words, some serums disintegrate in a few months under adverse conditions and I would ask whether this is not responsible for most of the lack of effect reported from the use of serum.

Dr. W. H. Seemann, New Orleans: I am delighted to hear an authority with the large experience of Dr. Lloyd come to the defense of serum in plague. Average textbooks refer to plague treatment with serum almost with derision, and yet I know of no agent more unjustly maligned than antiplague serum. We have had a good deal of experience with bubonic plague in New Orleans. We at first got serum from the Pasteur Institute. It was old, as Dr. Johns referred to in a general way, and it was not made with the specific strain of antigen. In other words, it did not have a specificity against our type of organisms. We subsequently injected two horses ourselves. We used the actual bacteria from patients and rats right in the city, and the use of this serum when finished gave results strikingly different from that we have obtained before, proving that if we want to get the maximum results of serum we must try to get the local specific antigen, inoculate a horse, and produce specific antibodies. I believe I have given the largest doses of serum of any man who has treated plague. I never gave less than 150 or 160 c.c., and I go further than Dr. Lloyd and repeat in from six to eight hours with similar doses. I had one man given 160 c.c. intravenously, and the temperature went from 106.5 F. to normal next morning. It is my belief that there is no difference between pneumonic plague and bubonic plague so far as the causative agent is concerned. I have seen two cases of plague in which there was severe pneumonia, and recently I saw a case of bronchopneumonia. The sputum was literally teeming with plague bacilli. In each one we were able to get results.

Dr. Matthias Nicoll, Jr., Albany, N. Y.: I know very little about plague; but a few days ago Dr. Wu, in charge of the federal control of plague in Manchuria as a representative of the Chinese government, expressed the opinion that the use of the serum was in his experience of very doubtful value.

Dr. Samuel B. Grubbs, New York: Plague is our most important problem, not only because the disease is advancing but because present methods to exclude it are so expensive. We are therefore trying to improve these methods and need your advice and help. We are working on two distinct lines, one the practical which is largely rat catching; and the other the investigation of plague epidemiology, especially the unknown details of its transmission by rats and fleas. We find interesting questions that we hope some day to answer; for example, why the North Atlantic coast has never been infected, although ships come there from all over the world and it should naturally have been infected long ago. Plague has infected several United States ports and exists in three of them at present, but North Atlantic ports have remained free. We cannot give the entire credit to superior quarantine; it is more probable that certain territory is noninfectable or nearly so. We want to learn what makes a port infectable. It may be possible to establish a rat or rat-flea index similar to the yellow fever *Stegomyia* index that will allow us to classify ports according to their infectability and to base our quarantine on this classification. Fumigation of vessels is now our chief defense, and the requirements are the same for all ports regardless of their degree of infectability. In New York we have constantly tried to check our fumigation by trapping and observation. We have learned that the most painstaking fumigation rarely fails to leave behind a few rats, sometimes a considerable number. With favorable conditions this means an increase of the original number within a few months. We have therefore tried to rat-proof ships, which means the elimination or blocking off of all places where rats can hide, the protection from rats of food supplies, and the blocking of rat runs. We are rat-proofing several ships at present and find that the rat population decreases as the rat-proofing progresses.

Dr. E. R. Hayhurst, Columbus, Ohio: I am interested in the possible historical relationship of plagues. In Ohio there was probably as great development of the mound builders as any place in the United States. It has always been a mystery why this people disappeared so suddenly. Sudden disappearance of peoples indicates superficial burial, if any burial at all. The thought occurred to some of us who are members of the Ohio Archeological and Historical Association that the reason might possibly have been the great plague epidemic of the thirteenth century (1345-1350), as recorded in Europe, because there is good evidence, from mounds of these people, that they were living well within the last thousand years.

Dr. B. J. Lloyd, Washington, D. C.: Answering Dr. Grubbs, I may say that the subject of rat-proofing vessels is treated of in the part of the paper which I did not read. To Dr. Nichols I may say that I did not know that Dr. Wu was as pessimistic about the serum treatment of plague as his latest statement would indicate. I wonder whether he had in mind pneumonic plague rather than bubonic. I know that there are outstanding men who do not regard the use of antiplague serum very highly even in the bubonic form of this disease, but I cannot concur in that opinion. I do not know how long antiplague serum will keep at low temperatures. I wrote to a friend of mine, who is working in the Pasteur Institute, but he states that they do not have the information. During the work in Guayaquil, I received a consignment of antiplague serum from Dr. Perry, who was then stationed on the Isthmus of Panama. It had been kept six months; under what conditions, I do not know. Its appearance made me think that it was of questionable value; but, as serum was scarce, I decided to use it. After losing several patients who I thought should have recovered, I discontinued its use and sent the remainder back to Dr. Perry. The serum used at Guayaquil, Ecuador, I purchased from the Pasteur Institute, Paris, from an institution in Berne, Switzerland, and from another in Buenos Aires. Purchases of from 10,000 to 20,000 20 c.c. bottles were made frequently, the serum being requested by cable and arriving fresh. We could tell from the markings when the serum was drawn. I have found difficulty in obtaining serum in the United States that was bright and clear, and I do not know of any serum manufactured in the United States since 1923. When buying serum, I think it is well to insist that the dealer state when the serum was drawn. I prefer serum as fresh as can be had. I think it is quite possible, as suggested by Dr. Johns and Dr. Seemann, that a more potent serum can be made from the particular strain of plague present in a given vicinity, although serum when so made is of course used fresh, which is a decided advantage. With regard to the identity of the organism which causes bubonic plague and that which causes pneumonic plague, I think there can be no reasonable question.

THE DIAGNOSIS OF BLINDNESS *

EDWARD JACKSON, M.D.
DENVER

A diagnosis is a decision, to be reached by careful consideration of all obtainable evidence. In a military commander or an executive, indecision may be more disastrous than a wrong decision. For a physician or surgeon, it may be quite as serious in its consequences. In cases of blindness, a decision on the extent or the cause of blindness may be the only professional service we can render. Every attempt to assist, to train, to compensate or to make economic provision for the blind renders the diagnosis of blindness more important.

All human decisions are liable to error, but this does not make decision less important. Through ignorance of facts, distortion of them, prejudice, poor judgment, failure properly to appraise the relative value of evidence, wrong conclusions may be reached. This may be the case in military affairs or in executive business, with judges as to points of law, or juries in regard to matters of fact. But this does not relieve officers or executives, judges or juries from doing their best to reach a decision on the situation or the facts presented. It is equally the duty of the physician to reach a diagnosis, and especially of the ophthalmologist to reach a decision—a diagnosis—regarding blindness.

If he is too anxious to avoid criticism for apparent dogmatism, to make clear what he really believes is the truth, his statement may be of no service to truth, justice or science. It is enough in any case to preface his conclusions by the simple words, "I think," or "It is my conclusion," "I believe that this person or this eye is, or is not, blind; or that the blindness is, or is not, from this or that particular cause." To decline to reach and state a definite conclusion as to the existence, degree and etiology of blindness is, in most cases, equivalent to a confession of incompetence, laziness, or indifference to the question presented.

No opinion should be rendered regarding a case of blindness without seeking out and considering all the evidence bearing on it. But, having done this, it is a shirking of responsibility for any one holding himself before the community as an expert as to diseases and defects of the eye and vision, to refuse to give a diagnosis as to blindness, or to state it in such doubtful terms as to render that diagnosis worthless.

It may be felt that, vision being subjective, no one but the individual himself can tell whether or not he is blind. It is equally true that the individual must generally know better than any one else whether he has committed a murder or theft, or planned and assisted in any crime, or really is justly entitled to some piece of property he has claimed. But as in any of those cases, the interest of the claimant in his alleged blindness often renders his testimony worthless. If his testimony is admitted, it gains significance and weight only as it is corroborated by collateral evidence over which the claimant's self interest has no vitiating influence. To elicit, weigh and present such unbiased evidence, and to estimate its value; in other words, to bring out and estimate the value of objective evidence of blindness is the business of the ophthalmologist.

The diagnosis should answer these questions:

Is there blindness present?
How great is the impairment of sight?
What is the cause of it?

With what certainty and accuracy can these be answered by a careful and complete objective examination? Let us admit that the diagnosis of blindness is easiest, most certain and most exact when the cooperation of the patient brings to our assistance all the subjective evidence regarding vision. But when the patient or claimant will not so cooperate, will not give such assistance, and by refusal to work actively against what he conceives to be his interest, either by a general attitude of obstruction, or direct falsehood, would prevent a correct or accurate diagnosis, what may we do to bring out the facts by complete and conscientious objective examination?

The answer to this question determines our ability to assist the community in excluding from certain occupations or branches of service those whose defective sight would endanger themselves, or impair their efficiency in those lines of service. It becomes more important with all legislation bearing on industrial insurance, compensation for injury, assistance, special privileges or benefit for blindness—directions in which the recognition of social responsibility has developed very rapidly of late. If we cannot render the objective diagnosis of blindness reliable, within practical limits, such legislation, custom or sentiment as has shown this development merely places the honest, industrious, kindly part of the community at the mercy of the morbid whims, cupidity, falsehood and selfishness of those whose extinction would benefit the race. Progress in the direction of benevolence, charity, public security or justice with regard to blindness rests today on its objective diagnosis.

SOURCES OF EVIDENCE

The history of the individual case, even the history of subjective phenomena, may have all the significance and value of objective evidence. Thus, a history of recent sudden blindness, perhaps following accident, when examination shows old scars of the cornea or choroid, or vitreous opacity, either congenital or manifestly of long standing, is absolute evidence of falsehood, either intentional or from ignorance, that properly discredits all evidence from such a source. On the other hand, the history of sudden blindness in homonymous lateral half fields, supported by corroborative limitations of the fields, and other evidences of intracranial lesions, becomes highly valuable and significant. Every cause of blindness that we know links up with an appropriate and suggestive case history. Allowing for the fact that no two cases are exactly alike in all particulars, it is next to impossible for any patient or claimant to construct a false history of his troubles that will pass critical consideration from an expert, unless he has the assistance of expert knowledge and experience that rarely lends itself to the purposes of the criminal. The case history carefully taken and considered, repeated if necessary and made the basis of cross examination, will, in the great majority of cases, reveal how much or how little credence can be given to the statement of the patient or claimant, and suggest in what directions objective examinations should be pushed to discover the truth.

The external examination of the eye in all cases of alleged blindness, complete or partial, should be carefully planned, prolonged and thorough. Every objective sign of previous disease should be noted and carefully considered with reference to its developmental or pathologic possibilities, the suggestions it makes of other lines of investigation, and the necessary or possible influence it may exert on visual acuity. A scar not perceptible to casual inspection may greatly impair visual acuity by the astigmatism, regular or irregular, that it causes. Only by eliminating or properly estimating all other factors causing impairment of vision can the right understanding of visual impairment by any one condition be determined. The objective diagnosis of blindness is the summing up of all ophthalmic diagnosis, in which common and generally unimportant conditions cannot be neglected without introducing sources of serious error and uncertainty.

---

* Read before the Section on Ophthalmology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

* Because of lack of space, this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints.

The ophthalmoscopic examination of the eye contributes equally to our knowledge of pathologic conditions present, and in addition it furnishes a test of the influence such conditions exert to impair sight in the particular eye under examination, by impairing the transmission of light through the refractive media and surfaces of the eye. The light coming out of the eye from behind the retina must pass through exactly the same physical conditions, to reach the eye of the observer, as light encounters after entering the eye from the external world, before it reaches the percipient elements of the retina of the patient. By familiarity with the details of the ocular fundus and the fundus reflex when fundus details are not visible, we secure at the back of the eye a series of test objects, the visibility of which can be compared with the visibility of the test letters and figures we use in everyday tests for visual acuity. By comparing visual acuity, tested in the ordinary way, in patients giving full cooperation in such tests, with the ophthalmoscopic visibility of the fundus, we can construct an approximate scale of fundus visibility that will correspond roughly to the visual acuity scale that we work with in general ocular examinations. This scale can be applied largely without the patient's cooperation, being in effect an objective method of examination.

In ophthalmoscopic estimation of visual impairment, skiascopy, from near the point of reversal, gives important evidence as to complete transparence of the ocular media and the share that ametropia, especially irregular astigmia, may have in producing visual impairment. Two eyes may appear to present about the same amount of opacity in the dioptric media; but in one skiascopy will be found impossible and in the other easy. It is safe to infer from the test that in the first visual acuity is greatly affected by the opacity, and that in the other it is not.

Each of us has developed some such scale for judging the effect of lesions impairing the transmission of light through the dioptric media, on which he bases his judgment as to the amount of visual impairment to be expected by a certain haziness of the fundus details. The noting as exactly as possible such interference with seeing the disk, central vessels, primary and secondary branches and smaller arterial and venous twigs, pigment stippling, reflexes, etc., and comparing such notes with those of visual acuity in cooperating patients, will give each observer a better grasp of ophthalmoscopic diagnosis and will indicate just what details should be looked for and what significance can be attached to their observed visibility. From the series of cases given below of opacity presented in the cornea, lens or vitreous, in each an attempt has been made to construct the outline of a scale of objective evidence of visual impairment. If a number of ophthalmologists will gather and compare such data, it will add to the value of what each of us has already learned in this direction, by his own examinations of patients.

The method pursued for estimating the effects of opacity and irregular refraction in the refracting media may be modified for application to all observed deviations of the ocular tissues from their normals. We can record the inflammatory and degenerative changes in the retina, choroid and optic disk with the visual impairment associated in each case in which the patient cooperates in giving his exact vision; and from such records we might construct a practical scale of probable impairments of vision, for the different visible ophthalmoscopic changes that may be observed.

Along these lines we must seek answers to such questions as: What visual disturbance can be expected with simple detachment of the retina? What from a well marked glaucoma cup? How much importance can be attached to whiteness of the optic disk, as evidence of visual impairment by optic atrophy? To what extent do pigment migrations imply destruction of visual function?

When it comes to assessing the visual damage due to fundus lesions, a damage arising from structural and functional impairment of the tissues inspected, we are on more uncertain ground. But when these furnish the best evidence obtainable, apart from the claimant's statements of what he sees, every effort should be made to ascertain the probable significance of what we can see.

Certain definite and measurable lesions, such as detachment of the retina, have a positive, although not entirely exact influence, on visual acuity. Series of two of these, detachment of the retina and the cupping of the optic disk in chronic glaucoma, are included in cases grouped below for study. Certain less conspicuous changes in the macula, likely to exist with circinate retinitis, are also important evidences of impaired vision.

In the appended series of retinal and choroidal lesions, the records regarding macular conditions have been emphasized by always including them in the case abstracts, which seem to show their importance. But wide acquaintance with anomalous appearances of the macula compatible with normal vision is essential to the estimation of the visual significance of what is there seen.

Exact observations as to color are of great importance for the estimation of visual capacity in the retina and optic nerve. The cases of optic atrophy are interesting as regards color significance. In this connection, careful observation of the finer or nutrient vessels is of paramount importance, as in the deductions to be made from swelling of the optic nerve head. This is possible to us as regards the optic nerve, with carefully chosen light for ophthalmoscopy, and is probably equally available for the retina, when red-free light is systematically applied for that purpose. But it must be borne in mind that the exact color of the light used has enormous importance as influencing the appearances to be observed in all such examinations. The colors employed must be standardized before the significance of what is noted can be properly estimated.

The application of observations made with the corneal microscope promises a great deal of help in the diagnosis of blindness in the future. But a great many more of these observations must be made and carefully compared with corrected visual acuity before due importance can be attached to such findings. An instance of possible advances in this direction is the case of tuberculous uveitis cited in connection with corneal opacities (Case 22).

The testing of pupil reflexes and ocular movements to avoid diplopia may give extremely important evidence as to blindness that may be present. It is fairly established that the direct pupil reflex to light implies a reflex arc, stretching from the retina to the primary visual centers along the afferent tracts, sufficiently effective to perform its function in a way that disproves complete blindness. Even a moderate direct pupil reflex is evidence of some vision, unless the visual tracts are interrupted beyond the primary centers by lesions affecting the optic radiations or visual cortex.

The evidence obtained by the direct light reflex is confirmed by the consensual light reflex in all cases of claimed monocular blindness. If the afferent tract is interrupted in front of the primary visual centers, the consensual light reflex is also lost for light thrown on the blind eye. But for loss of function behind the primary centers, we have homonymous hemianopia and the hemianopic pupil inaction; so that the hemianopic pupil reaction has great practical importance in the diagnosis of blindness, as well as in the localization of lesions affecting the visual tract.

The attempts made by Hess and others to study the hemianopic pupil reaction by light impressions sharply localized on small parts of the retina within the so-called pupillomotor area have led to confusion and doubt as to the diagnostic value of this reaction. The method described by Fisher,[1] if carefully followed, seems, however, to give definite and positive clinical data. If, with positive direct or consensual clinical reaction of the pupil to light, such reaction is found to be about the same whether the light falls chiefly on the right or on the left half of the retina, we are justified in concluding that the visual pathways are not interrupted behind the primary centers—that the person giving such reactions has light perception, and that if the reactions are good he has good light perception.

The consensual reaction is of especial importance when disease in one eye has bound down the pupil; and, it is asserted, has also caused blindness in that eye, the iris of the other remaining free to react under the influence of light. It is in connection with the pupil reactions that the claimant's statements with regard to the circumstances and nature of the disability claimed become of great importance. In the cases cited below, the condition of the pupil reflex has often not been noted on the case records, and the data here quoted are confined strictly to those found in the record. In general, no record regarding the pupil might be taken to mean that the reflexes were normal. But this is not satisfactory evidence when the pupil reflex may be the deciding factor as to whether blindness claimed is or is not really present.

It must be understood that in the foregoing discussion the ordinary reflexes of the pupil to light are alone referred to—those that take place within a very few seconds after exposure to the light stimulus. There is also a slow reaction of the pupil to strong light, and especially to direct sunlight, to which attention was called by the late George C. Harlan,[2] in which the pupil contracts slowly for several minutes. This form of reaction is not well understood and apparently has not been generally studied. It seems not dependent on the generally recognized pupillary reflex arc.

OCULAR MOVEMENTS TO AVOID DIPLOPIA

If vision is good in both eyes, and the faculty of binocular fusion is well developed, certain movements of the eye to avoid diplopia when a prism is placed before it, or withdrawn, are quite involuntary, and their absence may be taken as good evidence that binocular vision is not present. On the other hand, when these movements are elicited by placing a prism before one eye and removing it, we have proof positive that binocular vision is present.

Of course, a patient may have good vision in each eye and yet have no power of binocular vision or to perceive binocular diplopia, and such a person will give no ocular movements in response to such use of prisms; but instances of such lack of binocular vision and diplopia are relatively rare, and detract little from the value of this test in the diagnosis of blindness. If the antidiplopic movements of the eye are elicited by this use of prisms, especially on repeated trials, it is proof positive that blindness of either eye is not present.

It is quite possible by careful selection of test objects to be presented to the eyes, and the background against which they are to be seen, to form with this test an approximate estimate of the degree of visual acuity present. But methods of making this a quantitative visual test should be worked out by careful experiment.

CASES OF BLINDNESS

The following cases are cited by giving the vision present, with a few of the leading objective conditions noted in each, such as are of most value for the objective diagnosis of blindness. The vision is given in the terms originally used in the case records, although in computing averages, as for lens opacities of different degrees, the expressions noted have been reduced to equivalent decimals, for convenience in addition and division. They are the methods of noting visual acuity in common use.

The designation by distance at which fingers can be counted ought to be discarded; and of late years I have discarded it. It depends largely on the background against which the fingers are held. The regular visual tests, the broken ring, the incomplete square, the cross-point test of Wolfberg, or Ewing's broken line test can be used for the degrees of visual impairment commonly tested by counting fingers; and they give more accurate results. Roughly speaking, counting fingers is about equal to, or a little better than, recognition of 200 foot letters or tests, at an equal distance.

Only such cases are cited here as have been examined in private practice, in which the patients have given full cooperation to bring out their best vision, and have been under observation long enough to eliminate chances of error from a single examination. The facts cited are often those observed at one time in the prolonged course of a case in which many changes in vision and objective symptoms were observed. They have all been cases in which vision was reduced to about one tenth or less, cases approaching or attaining the condition of "industrial blindness."

---

[1] Fisher, J. H.: Tr. Ophth. Soc. U. K. 41:7.

[2] Harlan, G. C.: Tr. Am. Ophth. Soc. 7:671, 1894-1896.

OPACITIES OF THE MEDIA

This is the class of cases in which the visual impairment is presumably due to interference with the transmission of light to the percipient layer of the retina; and so far as possible cases in which blindness or impairment of vision was largely due to other causes have been excluded. In these cases the transmission of light from the ocular fundus to the observer's eye furnishes an objective scale, with which the transmission of light from without inward may be deduced with probability and some exactness.

These cases are here separated into three groups; opacities of the crystalline lens, of the cornea and of the vitreous.

LENS OPACITIES

Of opacities of the lens, 100 cases were taken, including 113 eyes. When the visual acuity is reduced in such cases to one tenth or less, the opacity generally affects the whole area of the pupil for light that reaches the macula through it from any external object. In nuclear cataract the periphery of the retina may receive light coming obliquely through relatively clear cortex, but this does not greatly affect the visual acuity as usually measured at the macula. In many of the cases the visual acuity was known before the lens opacity developed, and in some the vision afterward obtained by removal of the cataract is given. The visual impairment is thus definitely correlated with the observed objective symptoms.

Of these 113 eyes, eight are recorded as having no light perception. Presumably conditions other than lens opacity had arisen after cataract formation in these eyes to render the blindness absolute. But where no indication could be found as to what such condition might be, the case was included for comparison with cases of less extreme blindness, and of similar blindness from other causes. Also because the patient's response of "no perception of light" depends a good deal on his mentality. We constantly meet patients who claim to perceive light, although the most careful testing brings out no evidence to support their claim; and, on the other hand, there are cases recorded as having "no light perception" in which later removal of extensive vitreous hemorrhage, or a black cataract, has been followed by return of quite useful vision.

Patient 14 had light perception but nothing more. These represent the class of mature dense cataracts. Patient 23 could recognize "moving shadows"; that is, they could tell in what direction the shadows moved across the field of vision.

Twenty were able to "count fingers" at distances ranging from 3 inches to 4 feet, the average being 15½ inches; ten had vision ranging from 1/500 to 1/60, averaging 0.01; nineteen had vision ranging from 1/50 to 1/25, averaging 0.031; twelve had vision ranging from 1/20 to 7/100, averaging 0.058; nine had vision ranging from 8/100 to 10/100, averaging 0.085.

CORNEAL OPACITIES

Of the corneal opacities there were seventy cases, eighty eyes. Among these five had no light perception, which had been lost by the disease or injury causing the corneal opacity; nineteen had only light perception; seven could "see moving shadows"; nine could count fingers at distances varying from 6 inches to 4 feet, and averaging 15 3/10 inches; twelve had vision ranging from 1/500 to 1/60, averaging 0.009; thirteen had vision ranging from 1/50 to 1/25, averaging 0.026; eight had vision ranging from 1/20 to 1/15, averaging 0.052; seven had vision ranging from 8/100 to 10/100, averaging 0.088.

VITREOUS OPACITIES

There were forty-one cases of vitreous opacities, forty-four eyes. Of these, three had no light perception; four had only light perception; eight could see moving shadows; seven could count fingers at from 7 to 18 inches, averaging 10 2/10 inches; four had vision of from 1/500 to 1/60, averaging 0.009; nine had vision of from 1/50 to 1/22, with an average of 0.034; two had vision of from 1/20 to 1/15, averaging 0.058; and five had vision of from 8/100 to 13/100, averaging 0.1.

RELATION OF VISION TO VISIBILITY OF THE FUNDUS

In these 211 cases of opacity of the media we find 205 eyes with regard to which the veiling of the fundus is recorded in definite terms that can be arranged under the following heads: no fundus reflex; moderate fundus reflex; good fundus reflex; details of the fundus dimly seen and details well seen. As to the visual acuity that these grades of visibility of the fundus may imply, we gather the following statistics:

No fundus reflex was visible in ninety-one eyes. Of these, twelve had no perception of light, thirty-three had only light perception, thirty could see moving shadows, ten could count fingers, and six had vision recorded as ranging from 0.001 to 0.04 and averaging 0.015.

There was a moderate fundus reflex in fifty-one eyes. Of these, ten had only light perception, four saw moving shadows, thirteen could count fingers, and twenty-four had vision of from 1/500 to 8/100.

There was a good fundus reflex, but no fundus details were visible, in twenty-nine eyes. Of these, six could only count fingers, while in twenty-three the vision ranged from 1/200 to 8/100.

Details of the fundus were dimly seen in thirty-four eyes. Of these, four could see only moving shadows and five could count fingers, while in twenty-five vision ranged from 3/500 to 1/10.

Details of the fundus were clearly seen in three cases. All of these patients had vision of from 4/100 to 10/100.

FUNDUS LESIONS

In general, it is scarcely possible to form a scale of the influence of visible lesions of the ocular fundus on the acuity of vision. However, there are three conditions in which the ophthalmoscopic appearances give some indications for quantitative grading of the impairment of vision they cause. These are: detachment of the retina, glaucoma, and atrophy of the optic nerve.

DETACHMENT OF RETINA

Among thirty-three cases of detached retina, we find but one eye that had no light perception, and in this case the detachment was traumatic. There were four eyes in which vision was reduced to light perception, and twelve in which it was only moving shadows. In seven eyes, it was recorded as counting fingers at from 6 inches to 4 feet, and in nine it varied from 1/100 to 4/60.

GLAUCOMA

Of forty-three cases of glaucoma, fifty-four eyes, there were twenty-two cases in which the media were so hazy that the fundus could not be seen, but in all the others, twenty-one eyes, glaucoma cupping was present.

In sixteen cases there was no light perception. In five cases, six eyes, vision was reduced to light perception.

In ten cases, twelve eyes, moving shadows were perceived in some part of the field. In three cases, three eyes, fingers were counted at from 6 inches to 2 feet.

In nine cases, thirteen eyes, vision of from 1/100 to 1/10 remained in some part of the visual field.

OPTIC NERVE ATROPHY

Of atrophy of the optic nerve, there were thirty-two cases, forty-one eyes. Among these, in thirteen eyes of eleven patients there was no perception of light. In three eyes of three patients, there was only light perception. One eye saw only moving shadows. Four eyes in as many patients could count fingers. In the twenty eyes remaining, vision ranged from 1/125 to 9/100. In four of these eyes with some vision, there were still some swelling, haze and vascularity of remaining neuritis. In all the others, the nutrient vessels of the disk were almost or quite lacking, and gray or "paper white."

RETINAL DISEASE

In forty-three cases of retinal disease other than retinal detachment, revealed by ophthalmoscopy, the lesions vary so widely that no general grouping of similar conditions would be profitable, although the study of individual conditions is instructive. It should be noted, however, that in only three of the eyes was light perception lacking, and in all of these there was general disease of the retina, one of general degeneration, probably cystic, one of atrophy and one of neuro-epithelioma. Of the thirty-eight eyes in which vision ranged from 1/240 to 1/10, lesions of the macula are noted in fifteen. Any examination for causes and degree of blindness ought to include careful ophthalmoscopic examination of the macula.

CHOROIDAL DISEASE, DEGENERATION AND ATROPHY

In the fifty-one cases, fifty-nine eyes, given above as suffering chiefly from choroidal disease, the involvement of the macula is still more important. In twenty-three cases, twenty-five eyes, the involvement of the macular region of the choroid is especially noted; in the three eyes that had no light perception, coloboma of the choroid (probably with some other malformation). Sarcoma and universal sclerosis of the choroidal vessels following injury are mentioned.

PANOPHTHALMITIS AND SHRUNKEN GLOBE

In panophthalmitis in eleven eyes, the best vision was counting fingers at 30 inches, and six eyes had no light perception.

RETROBULBAR NEURITIS; TOBACCO AMBLYOPIA

In nerve lesions, retrobulbar neuritis and tobacco amblyopia, the poorest vision was perception of moving shadows; and this was an acute condition, followed by recovery of vision 2/3 and 9/10.

VISUAL TRACTS AND CENTERS

Among the four cases, eight eyes, in disorders of the visual tracts and centers, the best vision was 2/100 in one patient. Two saw moving shadows and one had no light perception.

AMBLYOPIA, CONGENITAL OR WITH SQUINT

It is understood that in these forty-seven cases two distinct conditions, congenital amblyopia, and amblyopia arising in connection with strabismus, are classed together; but in the absence of explanatory ocular lesions, they are alike so far as concerns objective symptoms. The diagnosis of them, including the discrimination between them, must rest largely on the history, on the point as to whether the amblyopia is bilateral or unilateral, and on the presence or absence of other congenital deviations from the normal type. It will be noted that of the forty-seven cases, twenty-two showed organic deviations from the normal, which took them out of the class of strict amblyopias. But such organic defects were not sufficient to account for the impairment of vision present.

It will be remembered that in Fuchs' work on the causes and prevention of blindness, congenital amblyopia, given as the cause of 0.2 per cent. of the cases in the statistics of Magnus, is the only cause that did not present characteristic objective evidence on which a diagnosis could be based. In this one condition the diagnosis must be reached through the history, and the absence of objective symptoms. The tests for malingering may be used to prove that the amblyopia is genuine and not merely psychic. But such tests must be multiplied and applied with great care, to furnish a sufficient basis for the diagnosis.

CONCLUSION

From this survey of 704 eyes blind, or near blind, from all the common causes of blindness, this fact stands out: Except in amblyopia, congenital or associated with squint, blindness is always associated with objective changes that declare the sight has been greatly impaired, and often furnish the most important evidence of how great that impairment is.

ABSTRACT OF DISCUSSION

Dr. T. B. Schneideman, Philadelphia: In the scientific sense, an eye is blind when it is incapable of perceiving the sensation of light—amaurosis. Practically, a person is blind when his visual power is so far reduced that he is incapable of following any occupation to gain his livelihood; from this point of view, it is of minor importance whether such a person possesses or not some slight remains of sight. This is the same as the definition of Cohn, one of the early students of blindness. Emmert defines blindness as the impossibility of going about in daylight, thus excluding hemeralopes. Schmidt-Rimpler and Magnus would express the limit of blindness when the patient is just able to count fingers at one-third meter in ordinary daylight. Statistics as to the incidence and causes of blindness among the population of a country depend mostly on official government census, and these are far from exact even in the most civilized countries. The statistics of blindness, as determined by census, give for the United States in 1920 the total number of the blind as 52,567, being 497 per million of population.

The chief causes of blindness given are cataract, glaucoma, atrophy of the optic nerve, ophthalmia neonatorum and trachoma. Only a very small percentage of those born blind reported blindness in the parents. Magnus' statistics, now somewhat antiquated, but still ranking among the most accurate at hand, based on 2,528 cases of blindness, give the leading causes in their relative proportion of frequency as ophthalmia neonatorum, trachoma and conjunctivitis of adults, diseases of the cornea, iridochoroiditis and iridocyclitis, glaucoma, atrophy of the optic nerve, injuries, and detachment of the retina. The question of the existence of blindness of one or both eyes resolves itself in practice to a determination whether the person under examination is simulating or not, or whether he is hysterical; for if the subject is honestly attempting to reply truthfully, the matter is easily settled. The ordinary tests for simulation or self deception are so well known that it is not necessary to enter into details.

The test devised by Dr. Jackson with the crossed cylinders is also based on impairing the vision of the good eye. Its special value as a subjective test is that so little manipulation is required by the examiner, who simply turns one of the pair of cylinders which have been placed in front of the good eye with parallel axes before the examination is begun, and which in that position exert no influence on the vision; the person under examination can scarcely realize how the eye alleged to be poor is being tested. Based as it is on the impairment of vision that results when a convex and a concave cylinder are brought to a right angle, reducing the vision to about 0.4 in an emmetropic eye with + 1 and — 1 cylinders crossed, it furnishes a ready means of disclosing unreliable statements as to the degree of impairment of the eye claimed to be defective.

Dr. Lucien Howe, Buffalo: The question of blindness has always been a *bête noire*. Every asylum for the blind is certainly a standing monument to our ignorance. But as we learn, their number will decrease. I think it is Magnus who says that with the introduction of vaccination blindness in Europe fell something like 40 per cent. We have not been able to make any such change since then, but gradually we are approaching it and little by little we make steps forward. One method for detecting blindness has served me well: A man was sent to me with a partially opaque cornea on both sides, but not enough to account for the almost total blindness that he claimed. I said at once that it was impossible to arrive at a conclusion as to the degree of blindness, and the only thing to do was to send him to the hospital and keep him under observation, which was done. The orderly who had always been connected with the institution was an exceedingly intelligent man; he watched him and I watched him. I was sorry for the poor fellow and I came to the conclusion that his sight was very slight. It seemed to us best, however, to test him still further, so I told the orderly to see how much he was able to get about in the dark and with a diminished light. He could hardly find his way about, it was necessary for the orderly to lead him to different parts of the ward. One evening I suggested to the orderly that he put around this patient's bed a table and a chair and everything that might obstruct his progress. Then I gave the man an active cathartic. At the proper time he arose, rubbed his eyes, and without any trouble found his way around the tables and chairs, leaving no doubt as to the question of diagnosis.

Dr. F. H. Verhoeff, Boston: This paper is very helpful to all of us who have to testify before industrial accident boards. I have used a simple test for many years with great success. Whenever a patient comes in who is suspected of malingering, the first thing I do is to make this test: Let us suppose that the left eye is claimed to be defective. I grasp the patient's head with my left hand, ostensibly to steady it, then drop my thumb down in front of his right eye and ask him to read the test-type. This he does before he realizes what I am doing. Then I cover also his left eye with my right hand and he is unable to read at all.

Dr Edward Jackson, Denver: My chief purpose was to urge that each of us should cultivate the ability to make an objective diagnosis of conditions presented and the probable extent of blindness that they cause, and my apology for introducing most of the several hundred cases is to indicate how, in going over my own cases, where I can interpret the meaning of the symptoms, I have been able to reach certain conclusions for myself. While comparison with cases of others is a very important thing, after that has been attended to each of us must get such experience with the ophthalmoscope and such acquaintance with conditions presented by the ophthalmoscope, in patients whose full cooperation we are sure of. When we get a sort of scale of objective conditions, coordinating with different degrees of blindness, we will be in a position where we can speak with as much definiteness as surgeons speak of the roentgen-ray findings, or of the presence of abscess, or a fracture, or as the psychiatrists speak as to the certainty or uncertainty of the cases on which they are expected to give expert opinions. The ophthalmologist should be trained to give an expert opinion of equal weight and accuracy with those based on roentgen-ray findings in many cases that are now arising in which blindness, partial or complete, is claimed. Even if we depend, to some extent on the subjective tests, we have the objective evidence and these objective tests should stimulate us to repeated subjective tests when we feel the results of the first obtained are not accurate.

PARENCHYMAL RÂLES IN PULMONARY TUBERCULOSIS

THEIR CLINICAL SIGNIFICANCE *

E. H. BRUNS, M.D.
Lieutenant Colonel, Medical Corps, United States Army
DENVER

It is not my intention in this paper to present another classification of râles, nor is it proposed to attempt to describe any new adventitious sounds elicited in pulmonary tuberculosis. During my rather long experience in tuberculosis work, râles have always presented the most perplexing signs in the physical examination of the lungs, especially when it came to correlating certain types of râles and the explanation of their production, as commonly taught, with other clinical findings. The standard books on physical diagnosis seem to have taken for granted the correctness of the older authors' conception of râles, and little that is new and more enlightening has been written recently on this subject. Writers have from time to time called attention to the fact that râles may persist for a long time after the patient has recovered. Amberson,[1] in one of his late articles, mentions such cases in which, with persisting râles, clinical symptoms have subsided, and serial roentgenograms have shown a very definite clearing. A certain group or class of râles, usually elicited only by expiratory cough and inspiration, is generally accepted as an important sign of chronic parenchymatous tuberculous lesions, and it is generally believed and held that these râles are produced by moisture or secretions in the terminal bronchioles. My object in this paper, based on careful study and investigations, is to show that this is probably not the case; that some other mechanism is responsible for their production; that their production seems to depend on a certain degree of collapse of the secondary lung lobules; furthermore, that these râles, while usually regarded as typical of tuberculosis, may be present without active lesions, and therefore they cannot be accepted as conclusive evidence of active or even manifest tuberculosis unless supported by other findings.

CLASSIFICATION

The nomenclature of râles, founded on many different classifications, makes it rather difficult to discuss a particular type, so that those who do not use the same terminology and classification will understand clearly the variety of râles being considered. Râles are classified according to their character, their method of production, their origin, or a combination of these. They may originate in the trachea, bronchial tree, cavities and pleura, but the discussion in this paper will pertain more to adventitious sounds coming from the pulmonary parenchyma. In considering the râles described by various authors, it may assist in the identification of parenchymal râles if those are referred to which can probably be classified in this group. Bushnell[2] introduced the term "indeterminate" râles to include râles which accompany inflammatory or irritative conditions of a less acuity than that of tuberculous pneumonia. He says, "Just as the crepitant and subcrepitant râle is associated with pneumonia, the indeterminate râle is the characteristic râle of chronic pulmonary tuberculosis.[3] He further subdivided indeterminate râles into "typical" and "atypical"; the typical, either small or medium, being uniform in size and occurring in showers, "the atypical found in tubes which contain varying and usually relatively small amounts of fluid, having no fixed characteristics as respects size, and time of occurrence in respiration."

---

* From the Fitzsimons General Hospital.

[1] Amberson, J. B., Jr.: Clinical Studies of the Healing of Pulmonary Tuberculosis, Am. Rev. Tuberc. **10**: 227 (Nov.) 1924.

Other authors (Flint[4]) employed the same term, applying it more specifically to a group of pulmonary râles elicited in tuberculosis of the lungs and other pulmonary conditions, the exact source and method of production of which are unknown. The râles generally encountered in pulmonary tuberculosis are the râles described by Bushnell and named "indeterminate." They were considered by him to be bronchial in origin, resulting from secretions in the bronchial tubes. This explanation for the "typical" form can be questioned for many reasons to be discussed later; but, granted that such is the case, even though their association with active disease could then be readily understood, this interpretation might still be misleading. Bushnell further says:

> Râles are the best evidence that the lesion is resisting its foes. Râles are absent in the obsolete or arrested lesion—the body does not need to fight. They are present in the stage of reaction—the body is fighting, whether successfully or not is to be determined in part by the number and quality of the râles, in part by other considerations. . . . They may be absent again, when the body can no longer fight—when the power to react is lost. Nothing could be more erroneous than to draw favorable conclusions from the diminution or the disappearance of râles in the very advanced case.

Turban[5] speaks of fine crepitations which, he says,

> probably originate from separation of alveolar walls which have become glued together and may be recognized in simple atelectasis. . . . The interpretation given of crepitation appears to me to be applicable in certain cases to somewhat coarser sounds. In cases running a favorable course, for years after cough and expectoration has disappeared, there may often be heard the same fine and medium râles which were to be heard at the height of the disease, especially after an effort to cough. It is impossible to distinguish these sounds from the true râles dependent on catarrh.

Sahli[6] refers to moist or bubbling râles, crackling dry râles and crepitations, all of which, according to his description, might be included under parenchymal râles. He describes the production of bubbling râles and crackling râles as "due to the formation of membranes of secretion in the bronchial lumen, which is stretched and torn apart again, partly by the movement of the air and partly by the movement of the lungs." The crepitations he conceives as being due to "the tearing apart of the alveolar walls by the inspiratory stream." He further adds that they can be produced by "blowing up the absolutely dry lung of the cadaver; and in perfectly healthy individuals with no real secretion in the alveoli or bronchi, crepitations are sometimes heard after they have been breathing superficially for a long time and then take a deep breath."

INTERPRETATION OF RÂLES

If we hope to interpret râles properly and use them as a practical guide in determining the character of a lesion and the clinical progress of a case, we must have a more accurate knowledge of their origin and the mechanism of their production. To have the term "bronchial" or "bubbling" apply to râles in cases in which, owing to the nature of the disease, we can assume them to be due to secretions in the bronchial tubes, and the term "indeterminate" to the same râles when the rationale of their production and the pathologic condition which they represent is uncertain, at least suggests that our interpretation in the former was erroneous.

In this paper I shall discuss a type of râles, small or medium, but uniform in size, bubbling, crackling, or crumpling in character, elicited toward the end of forced inspiration or bursting with the expiratory cough, and continuing during the greater part of the following inspiration. This is the common type of râle elicited over tuberculous lesions and designated at times as indeterminate, crepitations, cracklings, or fine and medium râles. We know that the sonorous and sibilant râles sometimes classified as whistling râles,[7] the bubbling râles of pulmonary edema and the gurgling râles of bronchiectasis are bronchial râles, but their law of production is different from that of the râles just described, which Bushnell would probably have designated as "typical indeterminate" râles. The former are variable, depending on the character and amount of secretions in the bronchial tubes or the turgescence of the mucous membrane; they may be heard at any time during respiration, and a cough is not required to elicit them. Sometimes a cough causes them to disappear, or they vanish after the patient raises some sputum.

From their sound, the method by which they are elicited and their behavior, no skepticism can exist as to their origin. In marked contrast, the others are localized and constant, regardless of the quantity of the patient's expectoration. They remain unchanged, irrespective of how much the patient coughs or raises during the examination. A cough is often necessary in order to elicit them. They may be fine or medium, but they are uniform in size and occur in showers at the same phase of respiration. They are encountered in all the pathologic-anatomic types of tuberculosis. The lesions may caseate and progress; they may fibrose and heal; perifocal reactions may develop and subside; pleural adhesions may be present or absent; the patient may have severe constitutional symptoms or none at all; he may have considerable cough with profuse expectoration or no cough and no expectoration; the roentgen ray may show any type of tuberculosis, and the involvement may be dense or it may be difficult to detect; still these râles remain unchanged and can persist indefinitely.

It is true that not infrequently, in time, as the lesions clear up and heal, the râles disappear, but we see many cases in which they persist after the patient has become cured and the roentgen ray reveals fibrous tuberculosis. It is inconceivable that secretions of invariable consistency and of such constancy could exist in the bronchial tubes, producing crackles and bubbles of uniform size, localized, unchangeable, and persisting over long periods of time, such adventitious sounds following an entirely different law from râles known to be produced in the bronchial tubes. No doubt, we do have bubbling râles caused by fluid in the bronchial tubes, as, for instance, in pulmonary edema, bronchiectasis, and sometimes during pulmonary hemorrhage; but such râles vary in size and number, occur at no fixed time, and may be present during both phases of respiration, requiring no cough to elicit and disappearing with the removal of secretions—not unlike the whistling râles or rhonchi in their behavior.

---

[2] Bushnell, G. E.: Manifest Pulmonary Tuberculosis, Mil. Surgeon **42**: 383 (April) 1918.

[3] Bushnell, G. E.: The Diagnosis of Tuberculosis in the Military Service, Mil. Surgeon **40**: 620 (June) 1917.

[4] Emerson: Flint's Physical Diagnosis.

[5] Turban: The Diagnosis of Tuberculosis of the Lung.

[6] Potter: Sahli's Diagnostic Methods.

[7] Kaufman. I.: A Method of Teaching Students the Diagnosis of Pulmonary Tuberculosis, Am. Rev. Tuberc. **10**: 210 (Oct.) 1924.

In any sanatorium, especially in an institution as large as the Fitzsimons General Hospital, many patients will be found with no constitutional symptoms, well nourished and ambulatory, over whose lungs large numbers of "typical indeterminate" râles can be elicited. Such a patient without cough or expectoration was taken into the room of a very ill consumptive patient, one in whom a recent extension and the development of a tuberculous bronchopneumonia had occurred. The râles were carefully compared, and no difference could be detected. One case was arrested and fibrous and the other very active and caseous; still, the râles were the same. Then, again, this experiment has been repeatedly performed: Normal pig's lungs are inflated with a bellows, and the râles produced compared with those elicited over the chest of the arrested case. The râles are the same. Perhaps a more convincing experiment was the one we were able to perform on a cadaver. A soldier commited suicide by shooting himself through the heart with a small automatic pistol. He died instantly. An incision was made in the midline of the neck, and the larynx and upper trachea were brought out through the opening. The end of the bellows was then inserted into the trachea and the cadaver made to respire. No râles could be elicited. The lungs and trachea were next removed from the chest intact, laid on the table, and examined. They were normal in every respect and the bronchi free from any secretions. The lungs were again inflated, and, as the injected air expanded the collapsed lobules, fine and medium râles were produced resembling in every respect the "typical indeterminate" râles of pulmonary tuberculosis. We have compared the "typical indeterminate" râles with those known to be bronchial in origin and due to secretions in the bronchial tubes. There is no similarity. We have compared them with râles produced in normal lungs with no secretions in the bronchial tubes, the râles being undoubtedly caused by the inflation of collapsed lobules. A similarity was found to be present. They should, therefore, resemble atelectatic râles. If we study the so-called marginal sounds, the râles sometimes elicited over the apexes when the patient first takes a deep breath after having been breathing shallow, the râles elicited above pleural effusions or over areas of lung rendered atelectatic by obstruction of a bronchus or by compression, or the râles of subcutaneous emphysema, we shall again encounter adventitious sounds similar to the so-called "typical indeterminate" râles.

For the last two years, a study, for the purpose of determinating the mechanism of râles, has been made on cadavers at this hospital, in the following manner:

A vertical incision is made over the larynx, and the larynx and upper part of the trachea are dissected free and brought through this incision. A bellows is then inserted into the glottis and the cadaver made to breathe by inflating the lungs with the bellows. During this artificial respiration the chest is auscultated, and râles, if present, are recorded. The lungs, together with the larynx and trachea, are then removed from the chest, and again by means of the bellows made to expand and collapse. Râles are again auscultated and recorded by lobes. In order to determine the exact origin of the râles, incisions are made into the lung through the area where they are produced, the condition of the lung is noted, whether moisture, pneumonia, congestion, and tubercle are present, and the cut surface observed during auscultation to see whether fluid bubbles from the cut end of the bronchioles during respiration. The bronchi and their branches leading to various parts of the lungs are then opened and the lumen of the bronchial tubes examined for secretions, inflammation and ulceration.

SIX TYPES OF RÂLES

So far, six different types of râles have been elicited and studied:

1. A coarse, gurgling râle, heard over cavities, due to air passing through fluid in the cavities.

2. A rattling, which can be heard without the stethoscope, and comparable to the tracheal death rattle. When elicited by auscultation, a very coarse bubbling sound is heard, both on inspiration and on expiration, but more marked with the latter. These râles are unmistakably due to fluid in the trachea and primary bronchi.

3. Medium râles, heard throughout inspiration and also during expiration, caused by fluid in the smaller bronchi. These râles are elicited when the lungs are full of fluid and contain considerable bloody serum and secretions, as in early pneumonia, congestion and edema. They are present also when the lung, completely expanded, is further inflated. An incision over the area where the râles are elicited shows a bubbling of serum or fluid from the cut ends of the bronchi during respiration, and occurring synchronous with the elicitation of the râles through the stethoscope.

4. Sonorous and sibilant râles, like those heard in asthma, produced by tenacious fluid in the larger bronchi.

5. Fine and medium râles heard over normal lungs in which there are no secretions in the bronchi or bronchioles, and elicited only when the lungs are in a condition of collapse and from this point made to expand. They occur in showers toward the end of inspiration and are not heard during expiration. They are associated in some way with atelectasis of the lung, either complete or partial, and are heard as the lung expands and air can be seen inflating the lobules. When the lung becomes completely inflated, they disappear, but can be made to reappear by squeezing the air from the lungs with the hands and then inflating them. They are not due to secretions in the bronchi or bronchioles, as the cut section of the lung over which they are produced is dry and does not extrude any serum during inflation. They are also not due to any changes in the mucous membrane, as the lumen of the bronchial tubes shows no evidence of bronchitis or disease. They are therefore probably caused by a popping open of collapsed lobules as the air forces its way into the intralobular bronchiole, or possibly to a sudden separation of approximated walls of the bronchi during inflation.

6. Fine crackling and crepitant râles, heard over the surface of the lung when the bell of the stethoscope is pressed against the lung with some firmness and moved about. They are also heard during auscultation over the lungs and occur synchronous with the inflation of the subpleural lobules.

PARENCHYMAL RÂLES

Consequently, it would appear that the "typical indeterminate" râles are connected in some way with the sudden expansion of the partially or completely collapsed pulmonary lobules, and in view of their origin could appropriately be called lobular or parenchymal râles. This collapse might be due to an exudate or infiltration in a neighboring lobule, to the constriction or contraction of areas of fibrous induration, or to the partial occlusion of bronchioles by the pressure of inflammatory tissue, by the constriction of fibrous bands, or by the obstruction of plugs of mucus, etc. In other words, we have a condition of partial or relative atelectasis, made more complete by an expiratory cough, and thus the "typical indeterminate," or, better termed, lobular or parenchymal, râles are produced. The parenchymal râle may exceptionally be heard with expiration. It is conceivable that some lobules may be inflated during expiration instead of during inspiration, as a result of an uneven expansion of the lung for various reasons. The parenchymal râle is not constantly associated with any one type of breathing, but it often occurs with feeble or restricted breathing. Frequently, the breath sounds are scarcely audible until the patient gives an expiratory cough, following which inspiration is rather high pitched. With large areas of atelectasis, bronchovesicular or bronchial breathing may be present. An important observation is that such râles can occur without abnormal secretions in the bronchi and bronchioles, which is not surprising when we are able to elicit similar sounds outside the lungs, as the crackling of air in the subcutaneous fascia, heard when the bell of the stethoscope is pressed gently against the emphysematous area. In postinfluenzal changes, parenchymal râles may be elicited over the bases of the lungs. They are usually associated with feeble breathing. The constitutional symptoms are mild, with little or no cough and expectoration. Roentgen-ray examination is negative. These râles may persist for a long period.

CLINICAL SIGNIFICANCE

We may now consider the clinical significance of such râles, and if what I have attempted in this paper to prove is true, we can quickly grasp how difficult and erroneous it would be to attempt to associate these râles with any one type of tuberculosis or the activity of tuberculous lesions without at least other supporting clinical data. From my own observation, râles such as I have just described are what many tuberculosis specialists and clinicians of today associate in their minds with the activity of tuberculous involvement of the lungs, or, at least, they are unduly influenced and give much weight to these râles as a sign of active disease. I will mention only a few of the complications and errors that arise on account of this more or less fixed idea.

A patient, after a period of hospitalization, during which time he has become free of symptoms, has passed through graduated exercise tests and the roentgen ray has shown fibrous lesions, is discharged from the hospital. On physical examination, he still has pulmonary râles. He starts out to become rehabilitated and restored to useful employment. As a necessary policy, he must, for various reasons, be examined by other physicians. The patient may contract a cold, becomes alarmed, and seeks the examination himself. The physician hears the râles, tells him the disease is active again, and he is rehospitalized. Thus, at the very time when he needs reassurance and encouragement, the patient is returned to the hospital disheartened and bewildered. A few experiences like this and he probably becomes an incurable pensioner.

An army officer, who has been retired on account of tuberculosis, and who had previously been a patient of mine, was admitted to the Fitzsimons General Hospital a number of years later, and came under my observation a second time. After retirement, he had made an excellent cure, and I had been impressed by his rugged health and powers of endurance, although a patch of râles persisted over the upper lobe of the right lung. During the war, he returned to active duty, and later became ill with symptoms suggestive of tuberculous activity. The physician examined him, heard râles, and without further question diagnosed activity. His case turned out to be a focal infection in one antrum, after much valuable time had been lost in treating the patient for active tuberculosis.

A young physician, who had had a busy career as a contract doctor in a western mining camp, desired to enter the Medical Corps of the Army, and on physical examination was held up because he had showers of coughing râles over the upper part of the left lung. He had had pneumonia in childhood, no other illness, and was in perfect health at the time of this examination. A roentgen-ray examination of the lungs was negative. Repeated examinations over a period of months showed no change in the râles. He was finally rejected, but has worked diligently in civil practice and has remained well ever since.

Many such instances as the following can be cited: A field artillery sergeant was sent to Fort Bayard to be treated for clinical tuberculosis. He was from West Point and thought highly of by his officers. They desired to have him returned to duty, if possible. After a year's treatment, he was in good general condition and free from symptoms, although he had medium râles over the upper parts of both lungs, which persisted unchanged. The patient was returned to duty and remained well.

Another noncommissioned officer, showing many râles over the lesions, was returned to duty just prior to our participation in the late war. He went overseas with the First Division, fought in a number of offensives, was wounded and gassed. Six months after the armistice, when examined, he was in excellent health, yet the same râles could be elicited over the old lesions.

SUMMARY AND CONCLUSIONS

1. Showers of fine and medium râles of equal size, occurring at the end of a full inspiration, or the so-called coughing râles which occur when the patient forcibly breathes out, gives an expiratory cough, and immediately breathes in, are not due to the bubbling of secretions in the alveoli or bronchial tubes, nor are they necessarily associated with abnormal secretions in these structures. Such râles are not always associated with active inflammatory processes in the pulmonary parenchyma or bronchi, and must be distinguished from tracheal, bronchial, cavity and pleural râles.

2. Parenchymal râles cause the most confusion. They may be due to pneumonia, fibrosis, atelectasis pleurisy, etc., and cannot be said to be associated with any particular disease or pathologic condition.

3. Showers of râles usually elicited only by cough and heard over the upper parts of the lungs are unquestionably the most reliable physical sign for the detection of tuberculous lesions.

4. The significance of these râles as a criterion of manifest tuberculosis and the character of the lesions will depend on other clinical findings—history, symptoms, sputum, roentgen-ray examination. A period of observation may be necessary in order to arrive at a definite diagnosis.

5. In studying the progress of a case and in deciding whether a tuberculous process is progressing or undergoing retrograde changes, the persistent occurrence of this type of râle is not a conclusive sign unless correlated with other physical signs and clinical findings.

Clinical Notes, Suggestions, and New Instruments

PYELONEPHRITIS COMPLICATING PREGNANCY AFTER NEPHRECTOMY *

John E. Hall, M.D., Nashville, Tenn.

I report the management of a case of pyelonephritis occurring in a woman who became pregnant about one year after I had performed a nephrectomy on her for pyonephrosis of the left kidney. The right kidney was at all times free of infection during her illness from the left-sided pyonephrosis. Attention is called to this fact, so that it may not be supposed that the pyelonephritis developing during pregnancy was due to impairment of the right kidney from infection at the time of this pyonephrosis. The primary focus of infection responsible for the pyelonephritis could not be ascertained. The patient's tonsils were removed shortly after her nephrectomy, and her teeth and accessory sinuses were in perfect condition.

REPORT OF CASE

Mrs. G. J., aged 27, became pregnant in May, 1924, and came to me the latter part of June for advice as to precautions necessary for her to take during pregnancy. Not being familiar with the course of pregnancy occurring after nephrectomy, I was dubious as to a normal outcome. However, knowing that sufficient time had elapsed since the nephrectomy for necessary compensatory hypertrophy of the remaining kidney to have taken place essential for the performance of physiologic function, I gave her advice as to the care of her general health, and she was instructed to report to me at once should any untoward symptoms arise. She was not seen again until late in September, when a call was received to come to see her at once. She was in bed, very ill, suffering from a severe chill. Her temperature within an hour reached 105 F. She complained of intense pain in the region of the right loin, and was very much nauseated. She stated that she had been having more or less urinary disturbances for several days, but had thought them probably due to the pregnant state. On the day previous, she had a very severe chill followed by high fever. A catheterized specimen of the bladder urine showed many pus cells and quite a few red cells, together with considerable albumin. The urine being highly acid, she was given large doses of hexamethylenamin, water was administered freely, and in addition, saline cathartics were prescribed. In passing, it may be stated that I place no faith in hexamethylenamin as an urinary antiseptic, and that it was given only because others recommend its use in this condition.

Within the next forty-eight hours, the patient had three septic chills with subsequent high rises of temperature. Nausea and vomiting were persistent, and she was completely prostrated by her toxic condition. As she was steadily becoming weaker, I decided to employ cystoscopy and drain the kidney by means of an indwelling catheter. On inserting the catheter in the right ureter, I met an obstruction about 4 inches up which was passed with much difficulty. When the catheter had passed and entered the pelvis of the kidney, 35 c.c. of purulent urine flowed through the catheter in a steady stream. After drainage, the kidney was lavaged with 1 per cent. solution of silver nitrate, the instrument removed, and the catheter left in place for continuous drainage.

The temperature at the time of the ureteral catheterization was 105 F. Following drainage by the indwelling catheter, there was a decided fall in the temperature, and the patient had no more chills. The catheter was left in the ureter for three days and then removed, following which, she had a slight rise of temperature daily for about ten days, but this daily elevation never exceeded 100 F. The kidney was lavaged every sixth day for about six weeks, at the end of which time the urine, obtained by ureteral catheterization, showed no organisms on culture, and was free from pus. Five weeks later, she began to have further urinary disturbances, and a specimen from the kidney at this time was culturally positive. It should be stated that the original infection, as well as the reinfection, was due to the colon bacillus. From this time to within five days of confinement, the kidney was lavaged with silver solution every week.

During the last six weeks, the cystoscope was passed with difficulty on account of the uterine enlargement. It may be stated that if one is gentle in the manipulation of the instrument, no fear need be entertained as to harm resulting from its use, even in the last few weeks of pregnancy.

The obstetrician attending this patient stated that she had a normal delivery, but I am firmly convinced that she never could have gone through with pregnancy and have given birth to a living child, had not pelvic lavage been used in the treatment of the severe pyelonephritis, and continued throughout the period of gestation.

Eve Building.

Special Article

THE USE AND UTILITY OF DIGESTIVE ENZYMES IN THERAPEUTICS

A SUMMARY OF THE REPLIES TO A QUESTIONNAIRE SUBMITTED TO THE MEMBERS OF THE AMERICAN GASTRO-ENTEROLOGICAL ASSOCIATION

W. A. BASTEDO, M.D.
NEW YORK

STATEMENT OF THE COUNCIL ON PHARMACY AND CHEMISTRY

For some years the Council on Pharmacy and Chemistry has been questioning, in general, the value of digestive enzyme preparations. As a basis for judging the claims for preparations already accepted for New and Nonofficial Remedies and for such new preparations as may be submitted for acceptance, the Council instructed its Committee on Therapeutics to obtain a report on the usefulness of digestive enzymes in medicine.

The Section on Gastro-Enterology and Proctology of the American Medical Association, and the American Gastro-Enterological Association were asked to cooperate in making such an investigation. A questionnaire was formulated by Dr. Frank Smithies of the Section on Gastro-Enterology and Proctology, Dr. W. A. Bastedo of the American Gastro-Enterological Association and Dr. Warfield T. Longcope, chairman of the Council's Committee on Therapeutics, and submitted by Dr. Bastedo to the members of his association.

The Council has considered the report prepared by Dr. Bastedo on the basis of the questionnaire and endorses its publication.

W. A. Puckner, Secretary.

In an endeavor to determine the extent of use and the degree of utility of the digestive enzymes in therapeutics, the Council on Pharmacy and Chemistry of the American Medical Association asked that a questionnaire on this subject be submitted to the members of the American Gastro-Enterological Association. Four questions were asked and replies were received from fifty-nine members, including one physiologist, one pathologist and one radiographer, who do not have occasion to consider the question. The replies may be summarized as follows:

Question 1. *In your opinion are the digestive enzymes of value as therapeutic agents?* Yes, 16; too little experience to record, 3; does not know, 1; very disappointing, 1; doubtful, 5; very limited, 7; in very few cases only, 2; rarely, 2; of minor importance, 2; as deficiency remedies only, 3.

---

* Read before the West Tennessee Medical Association, Paris, Tenn., May 21, 1925.

Question 2. *Do you prescribe:*

(*a*) *Pepsin or pepsin preparations?* Yes, 8; occasionally, 4; rarely, 3; total, 15.

(*b*) *Pancreatin or pancreatic preparations?* Yes, 15; occasionally, 4; rarely, 11; total, 30.

(*c*) *Diastase or diastase preparations?* Yes, 9; occasionally, 3; rarely, 2; total, 14.

Question 3. *What preparations of the digestive enzymes do you prescribe?*

(*a*) *Pepsin.*—Pepsin or scale pepsin, 7; essence of pepsin, 12; gastron, 8; glycerite of pepsin, N. F., 1; elix. pepsini lact., N. F., 1; peptenzyme, 1.

(*b*) *Pancreatin.*—Pancreatin, 12; enteric capsules of pancreatin, 2; holadin, 9; pankreon, 3; raw pancreas, 2; pancreas substance, Armour, 1; liq. pancreaticus, Fairchild, 1.

(*c*) *Diastase.*—Diastase, 1; Taka-diastase, 12; extract of malt, 1.

Question 4. *In what conditions do you prescribe these and do you consider your results good, fair or poor?*

(*a*) *Pepsin.*—Achylia gastrica, 10; achlorhydria, 1; atrophic gastritis, 2; pernicious anemia, 1; gastrogenic diarrhea, 2; subacidity, 2; gastric atony, 1; flatulence, 1; to digest core of carbuncle, 1; as vehicle, 6.

(*b*) *Pancreatin.*—Pancreatic deficiency (whether accompanying tropical sprue, pancreatitis, malignancy or other conditions), 24; gastrogenous diarrhea, 2; achylia gastrica, 4; achylia gastrica with pancreatic diarrhea, 2; chronic gastritis, 1; chronic gastritis with hypochlorhydria, 2; carbohydrate fermentation, 2; chronic cholecystitis (in conjunction with bile salts), 1; where free fat in stools, 2; distention and general abdominal complaints, 1; intestinal indigestion, 2; for peptonizing foods, most; as vehicle, 2; only in nutrient enemas, 1.

(*c*) *Diastase.*—Fermentative dyspepsia with starch indigestion, 9; achylia pancreatica, 1; chronic pancreatitis, 1; hyperacidity with poor starch digestion, 1; duodenitis with starch indigestion, 1; achylia gastrica, 1; obstructive jaundice, 1; as vehicle, 2.

RESULTS

For the most part, results from the use of these enzymes have been reported in general terms only. Such as they are have been included in the summary herewith.

SUMMARY

Pepsin.—Usually administered with hydrochloric acid and prescribed by fifteen members, pepsin finds its chief employment in achlorhydria or achylia gastrica with or without diarrhea, and whether or not the achylia is associated with pernicious anemia or tropical sprue. Beneficial results are reported by seven, though even then "only occasionally" or as "most noticeable if there is achylic diarrhea." It is also employed in subacidity by two, and in gastric atony and flatulence by one each, no mention being made of results.

Pancreatin.—Frequently administered with sodium bicarbonate and occasionally with calcium carbonate, pancreatin is prescribed by thirty members. It has its great use where there is evidence of pancreatic deficiency or assumption of such deficiency, whether of protease (trypsin), of amylase or of lipase, or of any two of these enzymes or of all three. Several members report results "good," and one considered it "highly valuable" in tropical sprue. Another obtains "excellent" results from the use of raw pancreas. Pancreatin is also employed slightly in cases of achylia gastrica and subacidity, no mention being made of results.

Diastase.—This is prescribed by eleven members in cases in which there is starch indigestion, and by one in achylia gastrica, one in achylia pancreatica, one in chronic pancreatitis and one in obstructive jaundice. Results in "fermentative dyspepsia with starch indigestion" are considered "fair" by three observers. The others fail to mention results.

CONCLUSIONS

From this report it is seen that among the members of the American Gastro-Enterological Association many do not prescribe digestive enzymes at all, while those who do employ such ezymes confine their use almost wholly to cases of demonstrated or believed enzyme deficiency. It is further noticeable that almost all who prescribe them show no great enthusiasm over the results of their use, except possibly in the case of pancreatin in proved pancreatic deficiency. The conclusion is therefore inevitable that they are of minor importance in therapeutics.

New and Nonofficial Remedies

SPLEEN AND RED BONE MARROW

Preliminary Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following statement regarding the experimental status of therapy with spleen and red bone marrow.

W. A. Puckner, Secretary.

Spleen was admitted to New and Nonofficial Remedies in 1910 with the statement: "Spleen has been used empirically in anemia, chlorosis, myxedema and various other diseases with no definite results." It was omitted in 1912 because there was so little evidence that it was of much value. A preparation of red bone marrow was admitted to New and Nonofficial Remedies in 1909 with the statement: "The value of this preparation is believed to depend on a power to stimulate the formation of red blood corpuscles. It is said to be useful in simple and pernicious anemia." In 1918, the Council omitted red bone marrow because the experimental and clinical experience with it had been disappointing.

Recently C. D. Leake of the Department of Pharmacology of the University of Wisconsin, and his collaborators, have studied the effects of spleen and red bone marrow given separately and in combination. From their studies these investigators conclude that a combination of spleen and red bone marrow is much more efficient than either spleen or red bone marrow alone. According to these studies the combination, used in substance or in the form of an extract, produced a decided effect within two or three days on normal animals. An increase of hemoglobin as much as 15 to 20 per cent. and an increase in red blood cells of one million was noted. A similar effect was observed on normal human individuals.

The combination of spleen and red bone marrow was administered to patients with secondary anemia resulting from a variety of causes. The improvement was not uniformly striking, but there was improvement in a considerable number of cases. The results in the treatment of pernicious anemia were uniformly discouraging.

It is too early at present to judge the value of the combination of spleen and red bone marrow in the treatment of secondary anemia, for the control periods in both animal and pathologic cases have been short. However, the reported improvement in cases of secondary anemia are sufficiently favorable to warrant a thorough investigation of this combination as a possible aid in the treatment of this condition.

Based on the studies of Leake and his collaborators, manufacturers are offering mixtures of spleen and red bone marrow. Thus, Lehn & Fink, Inc., market Spleen and Bone Marrow Desiccated, and the Wilson Laboratories offer a preparation under the trademarked name "Spleenmarrow."

Spleen and Bone Marrow-L & F. Desiccated is a mixture in equal proportion of desiccated spleen substance and desiccated red bone marrow of animals used as food by man. To obtain the product, spleens are dried in partial vacuum at a low temperature, the bone marrow of calf ribs is similarly dried; these dried products are mixed One grain of the finished product represents approximately 2½ grains of fresh spleen and 1½ grains of fresh red bone marrow. It is supplied in the form of a powder and in 5 grain capsules.

The "Spleenmarrow" of the Wilson Laboratories is stated to be prepared by extracting and concentrating in vacuo spleen substance and red bone marrow. No details of the method of preparation are furnished, but it is stated that the activity of the preparation is judged by the rise in blood cells in normal human beings and dogs, following the administration of the "Spleenmarrow" product. "Spleenmarrow" is marketed in the form of capsules, tablets and a liquid; each 5 grain capsule or 5 grain tablet or "teaspoonful" of liquid is stated to contain the equivalent of 2½ grains of desiccated spleen and 2½ grains of bone marrow powder.

BIBLIOGRAPHY

Leake, E W, and Leake, C D. Erythropoietic Action of Red Bone Marrow and Splenic Extracts, J. Pharmacol & Exper Therap **22:** 75 88 (Sept) 1923

Leake, C D. Hematopoietic Effects of Desiccated Red Bone Marrow and Spleen in Normal Humans, J Pharmacol & Exper Therap **22:** 401 411 (Dec) 1923

Leake, C D Abstract of Paper Presented at Meeting of American Physiological Society, Washington D C, 1924.

Leake, C D, and Evans, J S · Bone Marrow and Spleen in the Treatment of Anemia, Am J M Sc **168:** 819 835 (Dec) 1924

Thalhimer, William· The Use of Desiccated Red Bone Marrow and Spleen in the Treatment of Anemia, J Lab & Clin Med **10:** 129 137 (Nov) 1924

Kay, H. M Clinical Experiences with Desiccated Spleen and Red Bone Marrow in the Treatment of Anemia, M J & Rec. **120:** 281 283 (Sept. 17) 1924.

Snell, M W, and Fisher, David Spleen Extract and Bone Marrow in the Treatment of Secondary Anemia, Wisconsin M J **23:** 286 291 (Nov.) 1924

Dunham, R W Spleen Extract and Bone Marrow in the Treatment of Tuberculosis, Wisconsin M J **23:** 292 298 (Nov) 1924

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

PROTEIN EXTRACTS-MULFORD.—Atopen Solutions-Mulford—Liquids obtained by extracting the protein of substances believed to be the cause of specific sensitization.

Actions and Uses—See Allergic Protein Preparations, New and Nonofficial Remedies, 1925, p. 278

Dosage.—Protein Extracts-Mulford are used for both diagnosis and treatment See Allergic Protein Preparations, New and Nonofficial Remedies, 1925, p. 278

Protein Extracts-Mulford are marketed in 5 Cc vials containing 250 "protein units" per Cc.

Manufactured by the H K Mulford Company, Philadelphia. No U S patent or trademark

Almond Protein Extract Mulford[1], Apple Protein Extract Mulford[1], Asparagus Protein Extract Mulford[1], Banana Protein Extract Mulford[1], Barley Protein [illegible] Lima) Protein Extract Mulford[7], Bean (Navy) [illegible] Bean (String) Protein Extract Mulford[1], Beef [illegible], Beet Protein Extract Mulford[1], Buckwheat Pro[illegible]bbage Protein Extract Mulford[1], Cantaloupe Protein Extract Mulford[1], Carrot Protein Extract Mulford[1], Cat Hair Protein Extract Mulford[3], Cauliflower Protein Extract Mulford[1], Celery Protein [illegible]ken Protein Extract Mulford[2], Chicken Feather [illegible], Cattle Dander Protein Extract Mulford[3], Clam P[illegible], Cocoa Protein Extract Mulford[4], Codfish Protein Extract Mulford[2], Coffee Pro[illegible] Protein Extract Mulford[7], Cucumber Protein [illegible] Protein Extract Mulford[3], Eggplant Protein [illegible] Protein Extract Mulford[2], Egg Yolk Prote[illegible] Protein Extract Mulford[11], Goose Feather Protein Extract Mulford[3], Guinea Pig Hair Protein Extract Mulford[3], Horse Dander Protein Extract Mulford[3], Horse Serum Protein Extract Mulford[13], Kapok Protein Extract Mulford[12], Lamb Protein Extract Mulford[2], Lettuce Protein Extract Mulford[1], Lobster Protein Extract Mulford[2], Mackerel Protein Extract Mulford[2], Milk Protein Extract Mulford[9], Mushroom Protein Extract Mulford[3], Oat Protein Extract Mulford[7], Onion Protein [illegible] Orange [illegible], Orris Root [illegible] Oyster [illegible] Pea Protein [illegible] Protein [illegible] (Black) Prote[illegible] Protein Extract Mulford[2], Potato Prote[illegible] R[illegible]bbit Hair [illegible] Protein Extract Mulford[3], Rice Protein [illegible] Powder [illegible] (Polish) Protein Extract Mulford[7], Rye [illegible], Salmon [illegible] Protein Extract Mulford[2], Spinach Prote[illegible]uash Pro-[illegible] Strawberry Protei[illegible]ep's Wool [illegible] Sweet Pot[illegible], Tea [illegible] Tomato Prot[illegible] 'rotein [illegible] Protein [illegible] 'rotein

Protein Extracts Mulford are prepared from various substances, and extracted with a buffered salt solution composed of sodium chloride 25 Gm, sodium bicarbonate 12 5 Gm, phenol 0 5 Gm, one liter of distilled water The finished product is adjusted to contain 250 "protein units" per Cc

Products marked (1) are prepared in the following manner: The peel, if any, is removed, the substance is minced in a grinder and the juice is collected; 0 5 per cent phenol is added, also a thin layer of toluene The mass is thoroughly shaken and allowed to stand for one week It is then filtered and sterilized by Berkefeld filtration.

Products marked (2) are prepared in the following manner: To the minced substance acetone is added. It is shaken thoroughly and transferred to a filter This process is repeated until all traces of fat are removed The acetone is then evaporated off, and the dried residue sifted and extracted with the buffered salt solution

Products marked (3) are prepared in the following manner: The substance is subjected to heat at 65 C for one hour in a 0 2 per cent. solution of sodium hydroxid After cooling, it is strained through cheese cloth, paper filtered, and precipitated with acetic acid (36 per cent). The precipitate collected is redissolved in 0 2 per cent sodium hydroxid, filtered, and again precipitated with acetic acid The final precipitate is dried, ground in a mortar, and sifted through a bolting cloth The dried substance is extracted with the buffered salt solution.

Products marked (4) are prepared in the following manner: The shell, if any, is removed, the substance is minced (when required) and the oil extracted with ether. The residue is ground in a mortar and sifted through a bolting cloth. It is then extracted with the buffered salt solution

Products marked (5) are prepared in the following manner: The whites and yolks are separated and each coagulated with acetone. The respective coagulates are ground, dried and sifted through a bolting cloth The dried material is extracted with the buffered salt solution

Products marked (7) are prepared in the following manner· The substance is treated one hour with a 0 2 per cent. solution of sodium hydroxid It is then strained through cheese cloth, paper filtered, and precipitated with acetic acid (36 per cent) The precipitate collected is redissolved in 0 2 per cent. sodium hydroxide, filtered, and again precipitated with acetic acid The final precipitate is dried, ground in a mortar, sifted through a bolting cloth, and extracted with buffered salt solution

Products marked (8) are prepared in the following manner: The substance is washed in chloroform, dried, ground in a mortar, and sifted through bolting cloth. It is then extracted with the buffered salt solution.

Products marked (9) are prepared in the following manner: The substance is precipitated with acetic acid (36 per cent) The precipitate is collected, dried, ground in a mortar, and sifted through bolting cloth The dried material is extracted with the buffered salt solution

Products marked (11) are prepared in the following manner: The substance is ground, washed with ether, extracted with 0 2 per cent. sodium hydroxide, filtered and precipitated with acetic acid The precipitate is dried and powdered, and extracted with the buffered salt solution

Products marked (12) are prepared in the following manner: The fiber is extracted with 0 2 per cent sodium hydroxide at 65 C for four hours, filtered, and precipitated with acetic acid. The precipitate is dried, powdered, and extracted with the buffered salt solution.

The products marked (13) are prepared in the following manner· A sterile serum of the blood of horses is passed through a Berkefeld filter

Protein Extracts Mulford are tested and standardized in terms of "protein units" The unit is fixed at 0 001 Mg protein. The amount of protein per Cc is determined by the Kjeldahl method The amount of nitrogen found is multiplied by 6 25, and the result divided by 0 001 to obtain the number of protein units

INSULIN-SQUIBB (See New and Nonofficial Remedies, 1925, p. 174)

The following dosage forms have been accepted:

Insulin Squibb, 10 Units, 10 Cc Each cubic centimeter contains 10 units

Insulin Squibb, 20 Units, 10 Cc.. Each cubic centimeter contains 20 units

Insulin Squibb, 40 Units, 10 Cc. Each cubic centimeter contains 40 units

Insulin Squibb, 80 Units, 10 Cc Each cubic centimeter contains 80 units

NEO-SILVOL (See New and Nonofficial Remedies, 1925, p. 379).

The following dosage forms have been accepted:

Neo Silvol Ointment 5 Per Cent Neo Silvol, 5 per cent, in a base composed of glycerin and benzoinated lard, hydrous wool fat and petrolatum

Neo-Silvol Vaginal Suppositories Each suppository contains neo-silvol, 0 4536 Gm (7 grains), in a base composed of gelatin, glycerin and water.

MERCUROSAL (See New and Nonofficial Remedies, 1925, p. 234).

The following dosage form has been accepted:

Mercurosal Solution Each cubic centimeter contains mercurosal, 0 025 Gm (⅖₁₃ grain), in distilled water containing 0 1 per cent of sodium citrate.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - - Chicago, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - - Five dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, SEPTEMBER 5, 1925

CAN MONILIA DO HARM?

The announcement nowadays of some specific agent as the cause of a familiar disorder calls for courage and conscience on the part of the person who makes the announcement, and a critical attitude on the part of the medical profession. The reasons for this have been made apparent by the history of research in the etiology of disease. Inadequate and ill founded evidence, enthusiastically proclaimed without due regard to the rigorous proof that scientific demonstration should represent, and hastily accepted by the uncritical or the gullible, has furnished the occasion for many unwarranted hopes, with consequent disillusionments and bitter disappointments. One need merely recall the history of the study of yellow fever and the various bacteria that were endowed with etiologic powers only to be disclaimed almost as soon as they were acclaimed. As the cause of pellagra, harmful micro-organisms, toxic chemical agents, and deficiencies in the diet have been put forward. Even goiter has not been exempt from inclusion in the category of maladies of microbiotic origin. Whatever remains obscure provokes the search for the inciting germ. There is nothing essentially ridiculous or unwarranted in this; for the accumulated verified experience of medicine has demonstrated the triumph of bacterial etiology in many obscure maladies. The scientific features of modern medicine are nowhere more graphically illustrated than in the conquest of the infectious diseases. And now, as if a thousand known species of bacteria were not enough to furnish the harmful parasites on man and producers of disease, the investigators are searching out other lowly forms—protozoa and fungi and what not—to discover new malefactors responsible for the mysteries of disease.

In the stools of a large percentage of patients with psoriasis, Fleisher and Wachowiak[1] of the St. Louis University School of Medicine have found *Monilia* or monilia-like organisms. In some instances these forms were found in the blood, and more often in cultures made from the scales. It is reported, furthermore, that *Monilia* is not normally present in the blood and on the skin of unexposed portions of the body, and that this organism occurs in the feces in only a relatively small percentage of normal persons.

Monilia-like organisms were found in 85 per cent. of the stools of persons with psoriasis; similar or identical organisms could be cultivated or demonstrated in the skin scrapings in 35 per cent., and these organisms were present in the blood in 14 per cent. However, in normal persons such organisms were found in only 6 per cent. of the stools, and never on the skin or in the blood. *Monilia* is not a new suspect, having been accused of sinister relations in sprue. It is often difficult to distinguish between chance concomitant parasitism and universally dominant causation in the case of such invaders. Fleisher and Wachowiak assert, however, that the injection of an emulsion of the killed organism led, in a certain number of intractable cases, to a startling and rapid clearing of the lesions. More recently, Fleisher[2] has observed that inoculation with *Monilia* from patients may stimulate the epidermis to an activity which at least in part simulates that noted in psoriasis.

In all fairness, even a skeptical student must welcome every new observation that may bear on obscure dermatologic lesions. The St. Louis investigators frankly admit the possibility that the cause of psoriasis is not inherent in one factor alone. It may well be that constitutional factors, processes of sensitization to a particular agent, as well as the invasion by a specific organism, must be combined in a person in order that the lesions may appear. If *Monilia* is of importance in the causation of psoriasis, as is suggested, then the fact that the organisms are so constantly found in the feces in such cases suggests the possibility of an enteral sensitization. Even though the problem of psoriasis remains unchanged, it is worth while to know more about *Monilia* and its possibilities.

PROTEIN AND IMMUNITY

Whether immunity can be obtained to anything but foreign proteins is a question that has not lost its interest for immunologists. While the view most generally supported is that most, if not all, antigenic substances are proteins, some investigators maintain that immunization with various fatty mixtures, believed to be devoid of protein, leads to the development of specific antibodies in the blood of the immunized animal and that these antibodies react readily with the fatty materials used for immunizing. Some go so far as to suggest that the lipoids are even more important as antigens than the proteins, and the followers of

---

[1] Fleischer, M. S., and Wachowiak, Marian: Monilia as a Possible Etiologic Factor in Psoriasis, Arch. Dermat. & Syph. **11**: 756 (June) 1925.

[2] Fleisher, M. S.: Effects of Inoculating Monilia Isolated from Psoriatic Patients into Human Beings, Proc. Soc. Exper. Biol. & Med. **22**: 477 (May) 1925.

Much are enthusiastic advocates of the value of the fatty materials of tubercle bacilli and other bacteria for immunizing purposes. Besides this, there is the reputed capacity of the body to protect itself against such relatively simple poisons as morphin, arsenic and alcohol, and many others. Increased resistance to such poisons is different, however, from immunity against bacteria or foreign proteins: it is at best of relatively slight degree, of brief duration, and not the result of the production of antibodies that can be demonstrated in the circulating blood. Of late there have been demonstrated also the existence in bacterial cultures, and sometimes in other cells, of substances which apparently are not proteins but which nevertheless react specifically with antibodies developed by immunization with the bacteria or cells from which these reactive substances are derived. Perhaps most striking of these is the carbohydrate material found in pneumococci by Heidelberger and Avery,[1] which reacts with antipneumococcus serum. These bacterial carbohydrates of themselves will not, however, incite antibody formation when injected into animals, and hence are not antigenic.

The difficulty in accepting the reports of the immunizing efficiency of substances devoid of proteins lies in the fact that small amounts of protein are not readily detected, especially in the presence of such complex mixtures as are usually used for immunizing, and that unbelievably small amounts of material may serve to secure active immunization of animals. The last fact has been shown with especial clearness by the observations of Florence Seibert[2] on distilled water. She had observed that many samples of distilled water cause febrile reactions when injected into animals or into man, and demonstrated that this depends on the growth of bacteria in the water after its distillation. It is self evident that the amount of nutriment present in recently distilled water cannot be enough to maintain a luxuriant growth of bacteria, and it is indeed difficult to believe that any appreciable number of bacteria can grow on such a barren soil, the sole nutrient materials of which are probably traces of ammonia and other gases absorbed from the air. Nevertheless, it was found that not only did these infected distilled waters often produce fever, but that they served as efficient immunizing antigens even after the removal of such bacteria as were present. Dr. Seibert filtered such fever-producing distilled water through porcelain to remove the bacteria, and found that as little as 20 c.c. of the bacteria-free distilled water served, when injected into rabbits, to cause the animals to produce specific agglutinins for the bacteria that had grown in the water, the serum being reactive when diluted as much as 1:8,000. Now this water contained only the minute traces of material that had been elaborated by bacteria growing for a short time in distilled water, and either secreted or set free from their bodies in a filtrable form, surely in most minute amounts. Analysis of this water showed it to contain only 0.000014 mg. of nitrogen per cubic centimeter, and the total amounts of solids present in even large volumes of this filtrate defied weighing. If amounts of substance as minute as this can serve efficiently to immunize an animal, it is certain that no investigator can be sure that the lipoids, or whatever materials he immunizes with, do not contain equivalent, or probably much larger amounts of protein, for these quantities are far below the range of delicacy of chemical tests for proteins. In view of the difficulty that exists in explaining how anything except proteins can exhibit the striking specificity that is characteristic of immunologic reactions,[3] such a graphic demonstration of the impossibility of excluding traces of unknown material, perhaps protein, sufficient to produce immunity, makes extremely doubtful the value of any supposed examples of immunity to substances other than those containing some protein.

THE RELIEF OF DYSPNEA

Modern medicine aims not merely to relieve immediate distress or correct an obtruding defect but also to discover the underlying cause and to eradicate it. The ancient physician, Lee[4] has written, was content to observe phenomena as they existed under their natural conditions, to interpret them in accordance with a philosophical system, and to treat disease in the light of what his system and past experience had taught him. The modern physician does not rely on a philosophical system. Like his forerunner, however, he, too, observes phenomena under their natural conditions; but he goes further than this and alters the conditions, thus obtaining an alteration of the phenomena and a new standpoint from which to view them. He may apply to the cure of disease past experience, it is true, but it is past experience that has been put to the test of modern experiment. Moreover, Lee adds, by the aid of further experiment he pushes out into the unknown, sees disease from unusual standpoints, and devises new and hitherto unsuspected methods of dealing with it.

Hence it happens also that the physician of today is ever attempting a more rational therapy based on knowledge of etiology. Long familiar symptoms, such as pain and fever, are being analyzed scientifically in order to avert the need of relieving them purely "symptomatically," as is sometimes frankly said. This is true also of shortness of breath, or dyspnea, which Meakins has defined as "the consciousness of the necessity for increased respiratory effort." Means[5] has pointed out that the function of breathing goes on ordinarily without intruding itself into the field of consciousness. When, however, the respiratory organs encounter embarrassment in the performance of their task, not only do their movements enter the field of consciousness, but they enter it unpleasantly and produce discomfort; that is to say, dyspnea. Consequently, as Means expresses it, dyspnea will occur whenever the respiratory mechanism cannot with ease function to the extent required by the bodily processes. Furthermore, the management of dyspnea with intelligence calls for knowledge of "the factors that create a demand for pulmonary ventilation, and those which affect the efficiency of the bellows in meeting this demand." In other words, symptomatic treatment should be based on the known pathologic physiology.

---

[1] Heidelberger, M., and Avery, O. T.: J. Exper. Med. 38:73 (July) 1923; 40:301 (Sept.) 1924.

[2] Seibert, Florence B.: Am. J. Physiol. 71:621 (Feb.) 1925.

[3] Wells, H. G.: J. Immunol. 9:291 (July) 1924.

[4] Lee, F. S.: Scientific Features of Modern Medicine, New York, Columbia University Press, 1911.

[5] Means, J. H.: Dyspnoea, Medicine 3:309 (Aug.) 1924.

From this standpoint, various indications for the management of dyspnea can now be outlined with considerable confidence in their appropriateness. In the foremost place Means puts the reduction of the metabolic rate, because tissue respiration, or metabolism, is the prime determinant of the body's demand for pulmonary ventilation. Hence the effectiveness of treatment by rest. As Means has outlined it, mere confinement to bed of course makes total metabolism closely approach basal and therefore greatly diminishes the work both of the heart and of the respiratory organs, and consequently the dyspnea. Morphin, by diminishing pain and restlessness, will act in a similar way. In the dyspnea of hyperthyroidism, with or without organic heart disease, those measures which reduce the hyperthyroidism and therefore the metabolism by the same token diminish or abolish dyspnea. The serum treatment of pneumonia, when successful in that it reduced fever and with it metabolism, would have a like effect on dyspnea.

Dyspnea is an expression of a shortage of oxygen supply to the tissues. This failure to meet the needs may be due to a deficiency in the oxygen carriers, the hemoglobin-bearing red cells. Such anoxemic conditions may be relieved by blood transfusion, as in severe anemia. Again, with cardiac dyspnea a slow blood flow and consequent retarded transport of oxygen are concerned. Here relief may be brought by such measures as rest and treatment with digitalis, which improve the muscular power of the heart. There are forms of anoxemia, as in pneumonia, that are relieved by oxygen therapy.[6] Finally, Means reminds us that the procedures which improve the mechanical action of the thorax or which remove mechanical hindrances should never be forgotten. These include proper position in bed—that is, an upright or semiupright position when orthopnea is present; comfortable and adequate support; also the relief of abdominal distention and of pleural pain. To look behind the scenes of the immediate distress and discover the conditions that are generating it becomes the foremost duty of him who would meet an always difficult problem with the resourcefulness of a trained mind.

IS MUMPS CAUSED BY A SPIROCHETE?

Mumps is one of the infectious diseases that is still of unknown origin. For some time it has been regarded by many as due to a filtrable virus present in the saliva of the patient. Martha Wollstein[1] found that intraglandular injections of filtrates of mouth washings from acute cases will produce typical parotitis and orchitis in susceptible animals. Moreover, not only are the saliva and affected glands of the inoculated animals virulent, but in passage through a series of animals the virus first increases and then decreases in virulence. Micrococci also have been described as the probable cause of mumps. Herb's[2] inoculations of animals, especially of dogs, with a gram-positive diplococcus produced swellings, secondary orchitis, and an opsonic index for this organism like that in mumps, which appeared to indicate a pathogenic rôle for this coccus. Results similar to these have been obtained recently with cultures of a spirochete and a symbiotic bacillus. Kermorgant[3] of the Pasteur Institute in Paris finds in the saliva from mumps patients a spirochete of extremely regular spiral form that is fairly easily grown anaerobically in a medium containing rabbit serum and horse corpuscles. Passage through mediums containing horse serum eliminates most of the contaminating organisms except a motile, gram-negative bacillus that seems to have a true symbiotic relation with the spirochete, perhaps by influencing the reaction of the medium.

The spirochete is ciliated and actively motile in young cultures, rotating about what may be considered the fixed axis of its coils, and also describing irregular movements common to most spirochetes. It resembles somewhat *Spirochaeta pallida* and *Spirochaeta cuniculi*, but they are not spiral and are soluble in saponin and evidently differ serologically. This organism multiplies by transverse division, sometimes regularly into typical spirochetes, sometimes irregularly into short forms and granular forms that are filtrable, that can produce typical spirochetes in cultures with the living symbiotic bacilli (dead bacilli or fluids in which they have grown are not sufficient), and that probably constitute a phase in the developmental cycles of the organism. This cycle corresponds well with peculiarities of subcultures, which grow best only when made at a period of about twenty-five to thirty days after the inoculation of the original culture.

---

[6] Oxygen Therapy in Pneumonia, editorial, J. A. M. A. **85**: 37 (July 4) 1925.

[1] Wollstein, Martha: An Experimental Study of Parotitis, J. Exper. Med. **23**: 353 (March) 1916; A Further Study of Experimental Parotitis, ibid. **28**: 377 (Oct.) 1918.

[2] Herb, Isabella C.: Experimental Parotitis, Arch. Int. Med. **4**: 201 (Sept.) 1909.

[3] Kermorgant, Yves: Ann. de l'Inst. Pasteur **39**: 565 (July) 1925.

Intratesticular and intraparotid injections of mixed cultures rich in spirochetes produce orchitis and parotitis similar both to the natural disease in man, and to the changes produced in animals by the use of saliva directly from mumps patients. Rabbits and monkeys both react; and, although no spirochetes were found in sections of the glands, cultures of them contained many spirochetes. Passage of the infection by the use of affected glands was accomplished, but with evidence of a weakened virulence. The incubation period after injections of cultures is only from two to four days.

Serum from convalescent patients after the third week agglutinates this spirochete in higher dilutions than it does other spirochetes, and their agglutination titer is increased noticeably by the sixth month. Serums from syphilitic patients and other antispirochete serums agglutinate the organism only slightly and have no effect on its symbiotic bacillus. Specific lysins are also present in serum of convalescent patients.

Attempts to vaccinate animals with old cultures containing forms of degeneration failed, but living cultures attenuated by the addition of horse serum seemed to produce immunity to subsequent inoculations with active virus. It is well to keep in mind the possible nonreceptive condition of the animal before either inoculation. Whether a protective and curative antimumps serum and an active vaccine can be obtained remains to be seen. The results of further work along this line will be awaited with much interest.

Current Comment

MORE STATE SOCIETY PROGRAMS

A few weeks ago The Journal commented on the unusual program arranged by the Wisconsin State Medical Society for its annual session.[1] Attention is now called to the special character of the program for the Michigan State Medical Society, whose meeting will be held in Muskegon, September 8-10. The sessions of this state meeting are divided into considerations of four general topics, including the history and examination of the patient, the kidney in its relation to disease, malignant diseases and infectious diseases. In developing this program, the committee has given the leading places almost wholly to physicians from outside the state who have given special attention to the topics concerned. Each of the subjects is considered fully from the point of view of each of the medical specialties particularly concerned in its care, such as medicine, surgery, pediatrics, gynecology, obstetrics, otolaryngology and public health. Of course, physicians who are members of the state society will discuss the papers that are presented and bring out by questioning points in which they are particularly interested. Those in charge of the preparation of the program were, no doubt, guided by the view that physicians within the state constantly have opportunity to hear the work of their own members, and that the state society meeting offers unusual opportunity for graduate instruction by those from a distance. A somewhat similar plan is that of the Utah State Medical Association, whose program appears in beautiful form. The session to be held in Salt Lake City, September 7-12, is planned distinctly for postgraduate instruction. The committee has been able to secure the cooperation of numerous authorities from neighboring states, as well as from a distance. The meetings are to be held in the University of Utah, and opportunity is given not only for numerous lectures on succeeding days by the authorities present, but also for continuous special clinics.

PAN-AMERICAN CONFERENCES

Two reports recently published bear testimony to the increasing value of the sanitary conferences held periodically by the twenty-one American republics. The latest conference was held in Havana a few months ago. One of the books[1] records the transactions of this meeting; the other,[2] a report of the Peruvian delegate to his government, emphasizes the sanitary ties uniting all the countries on the western continent, the purely American character of a number of problems and the need of an All-American policy to solve them. These meetings are an outcome of the Pan-American tendency developed by Secretary Blaine when in charge of our own Department of State. Their beginning may be traced to the efforts of former Surgeon General Wyman and a group of Southern sanitarians. The need of securing some uniformity in quarantine regulations, with the natural burden to an evergrowing commerce and passenger traffic, were practical considerations. Provision for the conferences was actually made by a resolution approved at the general Second Conference of the American Republics, assembled at Mexico City from October, 1901, to January, 1902. Seven Pan-American sanitary conferences have already been held, and each has to its credit some substantial accomplishment. At the first meeting in Washington (Dec. 2-4, 1902), an organization was perfected and sanitary cooperation made a tenet of Pan-American policy. The second (Washington, Oct. 9-14, 1905) completed the first Pan-American Sanitary Code, still in force. Out of the third meeting in Mexico (Dec. 2-9, 1907), the fourth at San José, Costa Rica (Dec. 25, 1909-Jan. 3, 1910), the fifth in Santiago, Chile (Nov. 5-11, 1911) and the sixth—delayed because of the war—in Montevideo (Dec. 12-20, 1920) evolved the present Pan-American Sanitary Bureau. The greatest achievement of the Havana conference (Nov. 5-15, 1924) was the revision of the Sanitary Code. On that occasion, the Cuban secretary of state aptly recalled that the Washington 1902 meeting was the first international conference attended by the newly created republic of Cuba, and the subject most discussed there was the mosquito theory of yellow fever, which had been initiated by a Cuban and finally verified in the city of Havana. The Washington Sanitary Bureau provides both a clearing house and a bond to bridge the gaps between conferences. As emphasized by President Zayas, in closing the Havana conference, there is a common ground on which all American nations may well meet and work together—in the prevention of disease, in the suppression of epidemics, in curing illness. The mere realization of this one fact would amply justify the holding of such assemblies.

---

[1] Unusual Program for Wisconsin State Meeting, Current Comment, J. A. M. A. 85:521 (Aug. 15) 1925.

[1] VII Conferencia Sanitaria Pan Americana, Crónica Médico-Quirúrgica de la Habana, December, 1924.

[2] Paz Soldán, C. E.: Al Servicio de la Higiene Americana, Lima, Biblioteca de "La Reforma Médica," 1925.

THE DEPRESSOR SUBSTANCE IN HEPATIC TISSUE

In a recent issue of The Journal,[1] reference was made to the clinical studies of MacDonald and others in attempts to lower blood pressure by the use of liver extracts. The successful management of persistent hypertension presents a problem of such therapeutic difficulty that every prospect of attainment warrants careful consideration. Obviously, the use of crude tissue extracts, however potent they may be in the acute experimental test, is attended with great dangers. Protein effects, including a variety of anaphylactic manifestations, are always threatening; and, furthermore, the tissues yield a diversity of potent products that should not be injected indiscriminately into human subjects. It is fortunate, therefore, that biochemists have been attracted to the isolation of the alleged depressor principle. The latest investigators,[2] at the University of Western Ontario, appear to have demonstrated clearly that the substance is nonprotein in character. This is, of course, an advantageous finding. The active agent is soluble in 80 per cent. alcohol, can be separated from accompanying pressor substance, and can be further purified through its solubility in ether. According to the latest report, the principle thus refined depresses the arterial tension and maintains it at subnormal levels for a long time. Artificially induced hypertension similarly can be reduced to any desired level, in exprimental animals, depending on the dose. One cannot avoid the belief that progress in the possible control of clinical hypertension also is imminent. The magnitude of the problem has engrossed all thoughtful physicians. It has been stated, for example, that "hypertension ranks foremost among the causes of death in this country." Latterly we have even been led to believe that a large portion of our youth shows manifestations of unduly high arterial blood pressure. The studies of Diehl and Sutherland [3] at the University of Minnesota are, however, somewhat less disconcerting. They have found that when, among several thousand university students, precautions were taken to eliminate the influence of excitement, the calculated proportion of the entire group examined who showed secondary hypertension was 1.2 per cent.; transient hypertension, 5.4 per cent.; intermittent hypertension, 2.8 per cent., and persistent hypertension, 1.6 per cent. Nervousness and excitement seem to be most important factors in the production of transient hypertension in young persons. Apparently if these elements can be eliminated, the generally accepted standards for blood pressure are adequate. Such information is essential for the rational treatment of hypertension in the future.

WHAT DO PHYSICIANS PRESCRIBE?

The impression seems to be prevalent, although without any definite evidence, that physicians are again tending to the prescribing of ready-made formulas, and that the art of pharmacy is becoming less and less a necessity as an accessory to modern medical practice. In this connection, it is interesting to observe the results of a survey recently made under the Commonwealth Fund. The investigators examined 1,000 prescriptions, selecting at random a hundred prescriptions from each of ten states. Of these prescriptions, 51.9 per cent. contained only official ingredients, 29 per cent. contained both official and nonofficial, and 19.1 per cent. contained only nonofficial ingredients. In a second study of these prescriptions, it was found that the number of ingredients included in the 1,000 prescriptions totaled 2,680; of these, 81.4 per cent. were official and 18.6 per cent. nonofficial. As the study progressed, the ingredients of 17,577 prescriptions were tabulated. These were found to contain 40,454 items, of which 77.8 per cent. were in the United States Pharmacopeia, 5.4 per cent. in the National Formulary, 6.8 nonofficial but not proprietary, and 10 per cent. proprietary. A study of 10,000 prescriptions showed that from 70 to 85 per cent. called for the skill of the pharmacist in their compounding. This investigation revealed clearly that the filling of prescriptions is not, as has been believed, largely a matter of transferring a proprietary or secret formula preparation from one container to another as was largely the case twenty years ago. The results are encouraging in their indication that physicians are holding in large measure to the ideals urged on them when students by their instructors and emphasized by the Council on Pharmacy and Chemistry.

Regulation of Biologic Products.—On account of the danger to the public of the exploitation of contaminated or inert biologic products used in the prevention and cure of diseases of man, Congress enacted a law, July 1, 1902, to regulate their preparation and sale in interstate traffic. Under this law, regulations are issued governing inspections of establishments, examinations of their products, issue of licenses, and compliance with adopted standards of purity and potency. This law is representative of the regulatory measures enacted in the interest of commerce and to safeguard life and health. Because of the biologic and unstable nature of the preparations, the law requires special scientific facilities for its enforcement. It is for this reason that the law is administered by the United States Public Health Service.—Kerr, J. W.: *Pub. Health Rep.* **40**:1681 (Aug. 14) 1925.

---

[1] Lowering the Blood Pressure with Liver Extract, editorial, J. A. M. A. **85**:194 (July 18) 1925.

[2] James, A. A.; Laughton, N. B., and Macallum, A. B.: Note on the Separation of the Depressor Principle from Hepatic Tissue, Science **62**:181 (Aug. 21) 1925.

[3] Diehl, H. S., and Sutherland, K. H.: Systolic Blood Pressures in Young Men, Including a Special Study of Those with Hypertension, Arch. Int. Med. **36**:151 (Aug.) 1925.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALASKA

Physician Appointed to Game Commission.—Dr. William H. Chase, Cordova, Alaska, for eight years a member of the Alaska Health Commission, has been appointed to membership on the first Alaska Game Commission by Secretary Jardine of the Department of Agriculture.

ARIZONA

Survey of Tourist Camps.—With the cooperation of local health officers, the state board of health conducted a survey of tourist camps in Arizona. The survey showed that there were 109 camps, ranging in capacity from three to seventy-five cars and from eight to 250 persons. At the time of the issue of the bulletin of the state board of health (July), reports received showed that forty-five of the camps had attendants, thirty-one had buildings, eighteen baths, eleven tents, and sixteen screens. The water supply in thirty was municipal, in sixteen from shallow wells, in ten from springs, and in three was surface water. The milk supply was pasteurized in five camps, raw in thirty-nine, and canned in forty-four; only sixteen camps had flush closets. The health department is making an effort to improve the sanitation of tourist camps.

COLORADO

State Medical Meeting.—The fifty-fifth annual meeting of the Colorado State Medical Society will be at Colorado Springs, September 29-October 1, the House of Delegates as usual meeting the evening before the general meeting begins. The general headquarters will be at the Antlers Hotel, and all the meetings will be in the Colorado Springs Auditorium. Among the visiting speakers will be Drs. Robert M. Lukens and William F. Moore, both of Philadelphia, "Bronchoscopy as an Aid in the Diagnosis and Treatment of Suppurative Diseases of the Lung"; Dr. George Draper, New York, "The Practical Value to Medicine of Studies in Human Constitution"; Dr. Harvey P. Towle, Boston, "The Relation of Diseases of the Skin to Metabolism." The various counties have arranged historical exhibits, in addition to which there will be scientific and commercial exhibits. There will be a smoker, September 29, a reception, September 30, and a banquet, October 1. The Ladies Auxiliary will have their annual luncheon, September 30. A novel feature arranged by the entertainment committee will be group round table luncheons arranged for surgery, internal medicine, pediatrics and obstetrics, and eye, ear, nose and throat.

CONNECTICUT

Clinical Congress of State Society.—The Connecticut State Medical Society will hold a clinical congress at Yale University, New Haven, September 22-24. Subjects will be presented from the standpoint of diagnosis and treatment for the general practitioner, and among the speakers will be Dr. William H. Park, New York, "Toxin-Antitoxin"; Dr. David Riesman, Philadelphia, "The Acute Medical Abdomen"; Dr. Arthur L. Chute, Boston, "The Significance of Hematuria"; Dr. John O. Polak, Brooklyn, "The Conservative Treatment of the Toxemia of Pregnancy"; Dr. John H. Stokes, Philadelphia, "Neglect and Mistakes in the Diagnosis and Treatment of Syphilis"; Dr. Walter A. Bastedo, New York, "Intravenous Therapy"; Dr. James P. Erskine, New York, "Indications for Tonsillectomy"; Dr. Burton J. Lee, New York, "What the General Practitioner Should Know About Carcinoma of the Breast"; Dr. Francis C. Grant, Philadelphia, "Head Injuries"; Dr. Lewis A. Conner, New York, "The Use and Abuse of Cardiac Stimulants"; Dr. Henry G. Bugbee, New York, "Infections in the Urinary Tract in Children"; Dr. Philip D. Wilson, Boston, "The Treatment of Fractures"; Dr. Grover W. Wende, Buffalo, "Differential Diagnosis of the Commoner Skin Diseases from Syphilis"; Dr. Frank T. Fulton, Providence, R. I., "Painful Affections of the Heart"; Dr. Lawrence K. Lunt, Stockbridge, Mass., "The Treatment of Functional Nervous Disorders"; Dr. Ralph G. Stillman, New York, "Laboratory Procedures That Every Practitioner Should Know." President Angell will preside at an open meeting, September 22; there will be a theater party, September 23. Enrolment is open to all members of the American Medical Association for a fee of $10. The chairman of the enrolment committee is Dr. Robert L. Rowley, 79 Elm Street, Hartford, Conn.

FLORIDA

Hospital News.—The new Duval County Hospital, Jacksonville, which is to be used exclusively for the treatment of the indigent sick, will be opened about Jan. 1, 1926. Dr. John E. Boyd is president of the staff and Dr. Robert H. McGinnis member of the board of control.

Personal.—Mr. C. R. Weirick, Fort Lauderdale, has resigned as district health officer of the state board of health with headquarters at West Palm Beach, and has gone to Washington, D. C.——Dr. William H. Grace has been appointed city physician of Fort Meyers and chairman of the board of health.——A. W. Ziebold, Miami, for several years assistant chief of the health division, has been appointed assistant to the director of public welfare.——Dr. Burdett L. Arms, Jacksonville, was appointed state medical officer at the meeting of the state board of health, Jacksonville, August 18.

ILLINOIS

Health Education at State Fairs.—Five motor caravans, each with a medical and technical staff, left Springfield recently on a tour of instruction in public health to be given at the leading county fairs. Each unit is equipped with motion pictures and exhibits and prepared to perform physical examinations and medical tests.

Proposed Antidiphtheria Campaign.—In proposing a campaign to rid the state of Illinois of diphtheria in the next five years, the state commissioner of health said that in the last five years diphtheria had cost the people of Illinois about $7,000,000 in actual expense and had caused the death of 15,050 children and the illness of 67,729 persons.

Tuberculosis Sanatorium.—The cornerstone of the new Madison County Tuberculosis Sanatorium was formally laid, August 7. This, the fourteenth county sanatorium in the state, will accommodate 100 patients and cost $250,000; the building will soon be enclosed so that the work can be carried on without interruption during the fall. The board expects to admit patients early in January, 1926. A diagnostic tuberculosis clinic was held, September 2, at Edwardsville.

INDIANA

State Medical Meeting.—The annual meeting of the Indiana State Medical Association will be at Marion, September 23-25. There will be a golf tournament on the first day, a smoker in the evening, and meetings of the House of Delegates, the council and Women's Auxiliary. The second day and the afternoon of the third will be devoted almost entirely to scientific work. Among the visiting speakers, in the preliminary announcement, are Dr. Frederick M. Allen, Morristown, N. J., "Nephritis, Hypertension and Arteriosclerosis"; Dr. Charles L. Mix, "Chronic Nephritis"; Dr. William S. Newcomet, Philadelphia, "Present Status of Radium Therapy"; Dr. Louis G. Heyn, Cincinnati, "Arthritis with Special Reference to Acute Rheumatic Fever"; Dr. Hanau W. Loeb, St. Louis, "Adventures in Otolaryngology"; Dr. Joseph D. Heitger, Louisville, Ky., "Fundamental Points in Ethmoid Paranasal Disease," and Dr. William W. Babcock, Philadelphia, "The Management of Septic Peritonitis."

KANSAS

Hospital News.—The Santa Fe Hospital at Ottawa, of which Dr. Edward B. Gossett is surgeon in charge, will be closed after October 1. Work will soon start on the new $250,000 Santa Fe hospital at Albuquerque, N. M.

Typhoid Outbreaks.—Typhoid fever in epidemic form prevails in Kansas, according to the state board of health, fifty new cases having been reported in the week ending August 15. Fifty per cent. of the cases developed following vacations. However, the outbreak of twenty cases at Coffeyville was traced to a typhoid carrier employed at a dairy. The fifteen cases in children in Allen County, which have developed since July 4, were traced, it is reported, to ice cream eaten at a picnic; nine cases were reported from Allen County the week ending August 15, and eight cases from Sedgwick.

Fitter Families Contest.—Under the auspices of the Eugenic Society of the United States, a Fitter Families Contest will be held at the Kansas Free Fair at Topeka, September 14-19, the object of which is to apply the principles of heredity and scientific care which have revolutionized stock breeding to the human family. The method will be to study the family heredity by record and all the known facts about three immediate generations so as to show the traits of inheritance and furnish the basis of a permanent family history, and to examine the parents and children and record the results. The examination covers intelligence tests, physical examinations, health habits, and measurements; they will be conducted by specialists. Among the agencies cooperating are the state board of health, the University of Kansas and the State Teachers' College. The examinations are private and without cost, but appointments must be made in advance. Both parents and children must present themselves for examination, and grandparents, uncles and aunts may be examined, if desired. Each family attaining the standards set by the Eugenic Society of the United States will receive a Fitter Family trophy.

LOUISIANA

Personal.—Dr. Oscar Dowling, New Orleans, for twelve years trustee of the American Medical Association, completed his fifteenth year of service as health officer of the State of Louisiana, August 29, and on September 1 was reappointed president of the state board of health by Governor Fuqua.

Willard Centelever Located.—Following his escape from the leprosarium at Carville, July 11 (The Journal, August 1, p. 363), Willard Centelever was located in Montgomery, Ala., August 16. Centelever told health officers, it is reported, that he had visited Chicago and other cities and that he was willing to return to Carville.

Permanent Health Exhibits.—The second floor of the building recently purchased by the state department of health at 520-522 St. Louis Street, New Orleans, will be used for the installation of health exhibits similar to those used in the health cars which tour the state. Motion picture equipment will be installed, and other equipment to illustrate lectures on public health.

Certified Oysters.—It was announced, August 24, that, beginning September 1, oysters shipped out of the state of Louisiana would be inspected and certified to under the joint supervision of the state board of health and the U. S. Public Health Service. Dr. E. H. Gage of the Public Health Service is in New Orleans to supervise the certification in accordance with plans made at recent conferences of health officials and producers and dealers in oysters. As a basis of certification the oysters must be gathered only from unpolluted beds, there must be a physical examination of those who handle the oysters and sanitary equipment provided to handle them for interstate shipments. The state board of health will equip a boat as a laboratory to test the oyster beds.

Tulane Graduate School Reorganized.—The chairman of the medical advisory committee of the board of administrators of Tulane University announced, August 22, the complete reorganization of the Tulane University Graduate School of Medicine, which becomes effective at the opening of the university, September 21. The curriculum embraces three-year courses for a specialist's degree; the six weeks review courses, which formerly made up the curriculum, will be given under the new system also, and clinical facilities will be increased by the addition of the Touro clinics. No credit was formerly given for work in the school; students at the conclusion of the new three-year course will receive the master and higher degrees. Dr. Edmund Denegre Martin will be dean and Drs. Robert C. Lynch, C. Jeff Miller, Pierre J. Kahle, Amédée Granger, Allan C. Eustis, Henry Daspit, Jr., Randolph Lyons and Alfred C. King members of the executive committee. The curriculum includes studies in medicine, surgery, gynecology, obstetrics, urology, eye, ear, nose and throat; other subjects will be added.

MASSACHUSETTS

Change of Address.—The Boston Stammerers' Institute moved, August 28, to 624 Warren Chambers, 419 Boylston Street.

Hospital Merger.—The Framingham Hospital and the Union Avenue Hospital of Framingham have merged, according to the *Boston Medical and Surgical Journal*, under the name of the Framingham Union Hospital. An appeal will be made for funds to erect a new hospital building on the grounds of the Framingham Hospital.

Society News.—The Essex North District Medical Society held its quarterly meeting at the Danvers State Hospital, September 2, and was addressed by Dr. Albert M. Barrett, professor of psychiatry, University of Michigan Medical School, Ann Arbor; Dr. Charles F. Painter, Boston, "The Menace of Indifference"; Dr. Thomas J. O'Brien, Boston, "Medical Legislation," and Dr. John M. Birnie, Springfield, "The Medical Registration Laws of Massachusetts."

MICHIGAN

Hospital News.—Plans have been drawn for a new $130,000 contagious and psychopathic unit for the Highland Park General Hospital, Highland Park.

Personal.—Dr. Marie Keilin, for several years resident pathologist and roentgenologist at the Hackley Hospital, Muskegon, resigned, effective September 15.——Dr. Edward Martin, Detroit, has again assumed the editorship of the *Bulletin* of the Wayne County Medical Society.

State Medical Meeting.—Speakers at the annual meeting of the Michigan State Medical Society, Muskegon, September 8-10 (The Journal, August 22, p. 617), will include Dr. George W. Crile, Cleveland, who will discuss "The Contact of the Surgeon with the Problem of Cancer"; Dr. Channing W. Barrett, Chicago, "Cancer in the Field of the Gynecologist"; Dr. Aldred S. Warthin, Ann Arbor, "The Cause and Prevention of Cancer"; Dr. Howard P. Doub, Detroit, "Roentgenotherapy and Reduction in the Treatment of Cancer"; Dr. Henry F. Helmholz, Rochester, Minn., "Infectious Diseases and the Health of the Adult in Recent Years"; Dr. Perry G. Goldsmith, Toronto, "Infections of the Middle Ear"; Dr. Ralph H. Major, Kansas City, Mo., "The Classification, Recognition and Treatment of Chronic Nephritis"; Dr. Solomon Strouse, Chicago, "The Problem of Cancer as Met by the Internist"; Dr. John G. Huizinga, Grand Rapids, Mich., "The Conservation of Vision in School Children"; Dr. Clarence L. Starr, Toronto, "The History and Examination of the Patient from the Surgical Point of View"; Dr. Roger S. Morris, Cincinnati, "The History and Examination of the Patient from the Medical Point of View"; Dr. McKim Marriott, St. Louis, "Acute Nephritis in Children and Relation of Childhood Affections to the Kidney in Adult Life," and Dr. John B. Jackson, Kalamazoo, "Clinical Conferences."

MISSISSIPPI

Hospital News.—The campaign for funds for building the new King's Daughters' Hospital, Greenville, has been successful, and the general committee in charge of the building fund and the building has accepted the report of the subcommittee on location to build the new hospital adjoining the present one, which will be used as a nurses' home and school.

MISSOURI

Personal.—Dr. Garrett Hogg has been appointed city physician of Springfield, to succeed Dr. George W. Hogeboom, resigned.

Kindergarten Regulation.—The board of education of Kansas City has adopted a regulation requiring that all children preparing to enter kindergarten must register their birth certificates at the office of the board of health.

Health Director Overruled.—The city counselor of Kansas City has ruled that osteopaths shall be permitted to examine food handlers and certify as to their freedom from contagious disease. The health director of the city, following the enactment of a recent ordinance requiring the examination of food handlers, had refused to accept certificates made by osteopaths (The Journal, August 22, p. 167).

MONTANA

Hospital News.—The recent earthquake in Montana damaged the hospital for the insane, at Warm Springs, to the extent of $3,500.

Personal.—Dr. George A. Townsend, for fifteen years associated with the hospital at Chico Hot Springs, has retired from practice and severed his connections with that institution on account of poor health.

Fewer Cases of Rocky Mountain Spotted Fever.—According to the state department of health, there were twenty-nine cases of Rocky Mountain spotted fever with eight deaths in Montana in the first six months of this year, whereas in the corresponding period of 1924 there were thirty-seven cases with seven deaths. For the first time since records have been kept, no deaths occurred from this disease in Ravalli County, in which part of the state control work is being done by the state board of entomology.

NEBRASKA

Physician Arrested.—Dr. Charles E. Barnes, Omaha, was recently arrested, it is reported, by federal narcotic agents on a charge of violating the Harrison Narcotic Law.

Opposition to Tuberculin Test.—According to *Science Service*, contributions from farmers throughout Nebraska are being made toward a fund to test their rights under the Nebraska law for the eradication of tuberculosis in live stock.

Professors Appointed.—Dr. Aura J. Miller, a Fellow of the National Research Council, has accepted an appointment as assistant professor of clinical pathology of the University of Nebraska School of Medicine, and Dr. Frank L. Dunn as assistant professor of experimental medicine in that university.

NEW HAMPSHIRE

Licenses Required for Camps.—The 1925 legislature passed a law requiring that all camps which cater to persons under the adult age must be licensed, and that a license be granted only after an inspection by the state board of health. This tour of inspection of camps has been completed. There were 150 camps in the state subject to the license law, eighty-seven of which were boys' camps and sixty-three girls' camps. Only two were refused a license, and these temporarily, as conditions were immediately improved. According to a tentative system of rating, 35 per cent. of these camps were excellent, 50 per cent. good, and 15 per cent. fair. It was considered in approaching a camp that there must be (1) an adequate and safe water supply; (2) a clean, safe milk; (3) satisfactory disposal of waste material; (4) a healthful site, and (5) sanitary preparation of food. Among other things found was the use of lead pipe for water supplies, which in two camps came through a half mile of lead pipe. Both of these supplies were condemned, and lead pipe in even the smallest amount in other camps was ordered removed.

NEW JERSEY

Personal.—The governor has reappointed Dr. Charles A. Groves, East Orange, a member of the New Jersey State Board of Medical Examiners.——Dr. Walter E. Cladek has been appointed school medical inspector for the city of Rahway.

Social Hygiene Lectures.—The venereal disease control bureau, state department of health, gave twenty-two lectures in May to groups ranging in number from ten to 260, some of which were women's clubs and study groups, mothers' clubs, and nurses groups; while it is not the policy of the bureau to supply speakers to audiences of less than twenty-five persons, the exceptions were made because of special studies by these small organizations.

NEW MEXICO

New Child Labor Law.—The last session of the legislature of New Mexico enacted a new child labor law which requires children who work to have "labor permits." Permits will be issued by school superintendents in cities of 2,000 and more population, and by county school superintendents in other cases. According to the law, labor permits may be issued to children under 14 years of age during school vacation; to a minor more than 14 and under 16, permits may be issued during the school term if the income is necessary to support self, family or dependents. It is necessary before issuing permits to show that the child is in good physical condition and that the work to be performed is not such as would injure his health, morals or mental development.

NEW YORK

Personal.—Dr. Tivader Hervizy, district state health officer at Boga, Hungary, has been making a study of health administrative methods in the state department of health, under the auspices of the Rockefeller Foundation.

Jamestown and Sewage Disposal.—Following a suit for damages in the case of *Forbes v. the City of Jamestown* (THE JOURNAL, June 20, p. 1927), the voters of that community approved, July 27, a bond issue of $125,000 for the construction of a sewage disposal plant. For many years the city and certain villages have discharged raw sewage into Cassadaga Creek and its tributaries.

Annual Course for Health Officers.—Under the joint auspices of the state department of health and the Albany Medical College, a course of instruction for health officers in the vicinity of Albany, comprising twenty-five days of teaching with forty-one instructors and sixty-one lectures, clinics and demonstrations, was recently closed. Dr. Charles C. Duryee directed the course, and twenty-two health officers were graduated.

Instruction in Tuberculosis.—Another class in tuberculosis, authorized by the Suffolk County Medical Association, will start in September, and the series of classes will continue, says the *New York State Medical Journal*, until every physician in the county has had an opportunity "to learn tuberculosis." Dr. Edwin P. Kolb, superintendent of the Suffolk County Tuberculosis Sanatorium, conducted the first class, which met Wednesday afternoons in July.

New York City

New Clinics.—The Hospital for Ruptured and Crippled has opened new clinics in its outpatient department as follows: (1) the orthopedic and hernia departments, clinics at 7 p. m., Tuesday and Wednesday; (2) the physiotherapy clinics, 7 p. m. Tuesday, beginning September 15, and (3) the arthritis clinics at 9 a. m., Tuesday and Friday, beginning September 11.

Personal.—Dr. Fred H. Albee left, August 29, for Amsterdam, Holland, to attend the Fourth International Medical Congress of Industrial Accidents and Diseases, which meets September 7-12. Dr. Albee is American president to the congress.——Dr. Rowland G. Freeman and Louis I. Dublin, Ph.D., addressed the first General Congress on Child Welfare, Geneva, Switzerland, August 23-28, on "The Question of Nourishment" and "The Unification of Statistics on Prenatal Mortality," respectively.——Dr. Erik Vollmond of Denmark, who has been engaged in study at the Rockefeller Institute of Medical Research for the last year, returned to Copenhagen, August 22.

NORTH CAROLINA

Society News.—Dr. Wayne A. Rupe of the department of pediatrics, Washington University Medical School, St. Louis, addressed a public meeting in Goldsboro, August 20, under the auspices of the Wayne County Medical Society.

Waiting List at State Hospital.—The directors of the North Carolina State Sanitarium for Tuberculosis have announced a definite policy of retaining no patient in the institution for a period longer than eighteen months from admission, on account of the necessity of making room for other applicants. There is a waiting list now of more than 140 applicants.

Control of Midwives.—In an attempt to instruct midwives a system of licensing, dependent on instruction, is being undertaken in the counties of Wayne, Pitt, Richmond, Sampson, Edgecombe, Robeson and Beaufort. There were 83,667 births in the state in 1923, and 27,791, or 33 per cent., of them were attended by midwives. Of the white babies born, midwives attended 16 per cent.; of the colored babies born, midwives attended 72 per cent.

OHIO

Physician Honored.—A public reception was held in the village of Montgomery on the outskirts of Cincinnati, August 16, in honor of Dr. Charles W. Ekermeyer, who has practiced medicine in that community for forty-seven years. Dr. Ekermeyer was presented with a purse of $1,000 and an automobile.

Tuberculosis Hospital.—The county commissioners of Stark County have decided to provide funds for the erection and equipment of the necessary buildings for a county tuberculosis hospital, to be erected on the Martig site; in accordance with regulations, the state director of health has approved the action of the commissioners. A proposed bond issue of $150,000 for this purpose will be submitted to the voters.

Personal.—Dr. Clealand A. Sargent of Whitefield, N. H., has taken up his duties as district health supervisor with the state department of health, to succeed Dr. Edward J. Schwartz, who is now with the Florida state department of health.——Dr. Anderson L. Smedley has been appointed temporary health commissioner of Hamilton, to succeed Dr. Martin F. Vereker.

Hospital News.—Dr. Glenn G. Edwards, Willard, has been elected president of the Willard Community Hospital Association, which is raising funds to take over the Blaine Hospital.——Jefferson County has arranged to share the new tuberculosis sanatorium built by Belmont County.

OREGON

Personal.—Dr. Osmar K. Wolf has resigned as health officer of Woodburn and has gone to Germany for postgraduate study.

Hospital News.—The new Wesley Hospital at Marshfield was opened, July 13, the opening being advanced on account of the urgent need of the hospital. Dr. Leslie G. Johnson, Marshfield, is president of the staff, and Dr. George E. Dix, Marshfield, vice president.

Society News.—Dr. William T. Phy, Hot Lake, has been appointed president of the Eastern Oregon Medical Society; Dr. Edwin G. Kirby, La Grande, vice president, and Dr. Carl J. Bartlett, Baker, secretary-treasurer. Among others who addressed the annual meeting at Wallowa Lake was Dr. Richard B. Dillehunt, dean of the University of Oregon School of Medicine, Portland.

PENNSYLVANIA

Law to Aid Subnormal Children. — The Pennsylvania Assembly, at its last session, passed the Lanius bills, which amended section 1413 of the school code. The new measures require that all children of school age having physical or mental handicaps shall be cared for in special classes, and where there are not enough such children in a school district to warrant the establishment of a special class of at least ten children, the handicapped children must be sent to approved classes or institutions outside the district, unless their parents procure for them proper instruction at home or elsewhere. When children are taught in special classes or institutions outside the district, the cost of tuition is divided, 25 per cent. to be paid by the district of their residence, and 75 per cent. by the commonwealth.

Smoke Prevention Ordinance.—For about ten years, the city of Pittsburgh has had an ordinance which prohibits "the production or emission within the city of smoke, the density or shade of which is equal to, or greater than Number three of the Ringlemann Chart, from any stack, except that of a locomotive or steamboat, for a period, or for periods aggregating two minutes or more in any period of fifteen minutes, and the emission of such smoke from any locomotive or steamboat for a period or periods aggregating one minute or more in any period of eight minutes, except for a period not to exceed twenty consecutive minutes, not to exceed once a day, while a new fire is being built therein." Since this ordinance became effective the tar content of the solid material deposited from the air in Pittsburgh has decreased about 70 per cent. A survey completed by the Mellon Institute in 1924 showed, however, that the total solid material not under the control of the ordinance had increased 39 per cent.

Health Cars.—Thousands of children have been examined this summer by the state health department staff attached to the mobile health unit, which includes physicians, dental hygienists and nurses. The parents of children who needed medical attention were referred to their family physician. ——The traveling laboratory devised to protect the water supply used by motorists in Pennsylvania has covered much of the main highway systems and many miles on less frequented roads this summer. Private water supplies tested by department personnel were placarded as safe when they met approved standards. Certificates signed by the secretary of health attesting to this fact were issued to the owners of these supplies. Springs and wells not approved were so marked.——A mobile milk laboratory was on the road during the summer, testing chemically and bacteriologically remote sources of milk supplies which do not find their way into pasteurizing plants. The sanitary care of milk was explained to the individual dairyman.

Philadelphia

Personal.—Dr. Leopold S. Vaccaro, an instructor in the University of Pennsylvania School of Medicine, who is in Rome in the interest of the Sesqui-Centennial Exposition, has received the honorary degree of doctor of medicine from the University of Rome.

Byberry Buildings Dedicated.—The group of buildings at Byberry for the Institution for the Feeble-Minded, costing about $2,500,000, has been formally dedicated. Dr. William Krusen, director of the department of health, presided at the exercises. The institution now has a capacity of 3,600 patients.

Smallpox Quarantine.—The first case of smallpox since last winter was discovered, August 25, in a negro who returned, August 18, from Denmark, S. C. As a result, the area from Thirty-Seventh Street to Saunders Avenue and from Filbert Street to Powelton and Lancaster avenues was placed under quarantine, and about 2,000 persons in the quarantine area were vaccinated.

SOUTH CAROLINA

Personal.—Dr. Percy H. Brigham was reelected as health officer of Florence, July 1.——W. Frank Walker, Dr.P.H., New York, representative of the American Child Health Association, recently came to Columbia to make a survey of health conditions in the state.

TEXAS

Appointments at Dallas. — Dr. Ralph W. Jenks, for two years assistant city health officer, has been appointed city health officer to succeed Dr. Price M. Walker, recently resigned; and Dr. W. R. McAdams, Jr., head of the Emergency Hospital, has been appointed assistant city health officer.

Chiropractor Fined.—F. M. Loughiller, a chiropractor of Bonham, is reported to have been found guilty by a jury of practicing without a license, and fined $50 and sentenced to one day in jail. As a result of the recent request of the state board of medical examiners for aid in enforcing the medical practice act, the state was assisted in this case by a representative of the Texas State Medical Association.

Society News. — Dr. James R. Bost, Houston, has been elected president of the Texas Society of Orthopedic Surgeons; Dr. Charles F. Clayton, Fort Worth, first vice president; Dr. Ernest P. Cayo, San Antonio, second vice president, and Dr. Benjamin L. Schoolfield, Dallas, secretary-treasurer. ——The Four-County Medical Society (Childress, Donley, Hall and Collingsworth) met at Memphis in Hall County, August 14. Among others, Dr. Charles M. Rosser of Dallas spoke on "The Menace of the Medical Underworld."

Improvements in Sanitation.—The state board of health notes that throughout Texas there is evidence of an increasing appreciation of sanitation in the number of plans for sewage disposal and water filtration plants submitted to the board for approval. Bonds have been voted for or elections have been ordered to approve bonds for water filtration plants for Beaumont, Big Spring, Calallen, Comanche, Dilley, Ennis, Grand Prairie, Goree, Houston, Hubbard, Harlingen, Jayton, Lometa, Lockhart, Lubbock, Loraine, Mabank, Mission, O'Donnell, Port Arthur, Pharr, Richardson, Rusk, San Antonio, Teague, Waco and Wichita Falls, and sewerage systems are now under construction or improvements contemplated at Bowie, Brownfield, Canyon, Crowell, Dallas, Ennis, Hamilton, Houston, Lubbock, Lufkin, O'Donnell, Port Arthur, San Angelo and Schulenberg.

VERMONT

Society News.—Dr. James B. Herrick, clinical professor of medicine, Rush Medical College, Chicago, addressed the Rutland County Medical and Surgical Society, July 14, at the Green Mountain Club House in Sherburne on "Certain Practical Points Concerning Heart Disease." Among other guests were Dr. Bird J. A. Bombard, Burlington, and Dr. Oliver N. Eastman, associate professor of obstetrics, University of Vermont, Burlington.

VIRGINIA

Appointments to Board of Health. — The city council of Danville has elected Dr. Samuel R. Newman, Dr. Richard W. Garnett, Dr. Charles W. Pritchett and Dr. Robert B. James members of the city board of health.

Personal.—Dr. H. T. Kennedy has taken up his duties at Eastville as health officer of Northampton County.——Dr. Charles F. Moriarty has arrived in Suffolk to take over the duties of director of health for the Nansemond County Board of Health, succeeding Dr. Warner H. Newcomb, resigned.

Dr. Levy Goes to Tampa.—Dr. Ernest C. Levy, Richmond, who was recently appointed full-time professor of preventive medicine at the Medical College of Virginia, has been given an indefinite leave of absence to accept the position of head of the health department of Tampa, Fla.

WASHINGTON

State Medical Meeting.—Just previous to the annual meeting of the Washington State Medical Association at Seattle, the county health officers will meet at the Olympic Hotel, September 15-17. The Washington State Medical Golf Tournament will be held at the Inglewood Golf Course, Seattle, September 16. There will be a public health league luncheon and general meeting at noon, September 17, and a banquet at the Olympic Hotel that evening. The annual dinner-dance will be Friday evening. The program for the state meeting this year contains the reports of committees as authorized by the board of trustees (The Journal, August 22, p. 619).

WEST VIRGINIA

Typhoid Outbreak.—The report of three cases of typhoid fever at Morgantown, August 15, brought the total number developed in that community in a few days to thirty-four, which equals the total number of cases previously reported in the last three years. Dr. James G. Townsend of the United States Public Health Service is investigating the outbreak.

Personal.—Dr. Benjamin O. Robinson, Parkersburg, and Dr. Hugh A. Barbee, Point Pleasant, have been appointed members of the state public health council, and Dr. Harry G. Camper of Welch has been reappointed to the council.——The governor has named Dr. Constantine C. Barnett, Huntington, as superintendent of the new state hospital for the colored insane at Maggie.

Regulation of Midwives.—A law passed by the last legislature provides for the instruction, examination, licensing and registration of midwives, and a survey has been started which will list midwives in the state. A midwife must now be of a certain age, able to read and write, and attend instruction school or submit evidence of being qualified. The state department of health will then issue annually a license. Classes of instruction for midwives will be established. West Virginia is the thirty-seventh state to provide regulation for the practice of midwifery.

Fraudulent Diploma Law.—Another new law provides a penalty of confinement in the state penitentiary for a period of not less than one year nor more than three for any person who shall make or publish for the purpose of selling or giving away a diploma which falsely represents the holder to be a graduate of any medical school or medical educational institution. Any person who offers to dispose of such diploma or uses his name or permits it to be used as a subscriber to such false diploma, or engages in the practice of medicine by virtue of such diploma, shall be guilty of felony. The law provides, further, that in addition to confinement in the penitentiary the person convicted may be fined not less than $100 nor more than $1,000.

West Virginia Admitted to Registration Area.—In 1920, the state health commissioner started an educational campaign for a model law on reporting births and deaths, with the result that the present vital statistics law was passed the next year. In 1923, an examination of records by the federal government was requested in the hope that West Virginia would be admitted to the registration area. The examination showed that only 78 per cent. of the births were being recorded. The state health department then employed an agent to stimulate reporting. In examining the records again this year, the Census Bureau sent out about 300,000 postcards asking persons to report any birth or death that occurred in their family in the last year; it was found that at least 90 per cent. of these reports were on file in the state department of health, and West Virginia has been admitted to the birth and death registration areas for 1925.

WYOMING

State Society Adopts Colorado Medicine.—The Wyoming State Medical Society has adopted *Colorado Medicine* as its official journal. The secretary, Dr. Edwin Earl Whedon, Sheridan, will edit the Wyoming section.

CANADA

Personal.—The honorary degree of LL.D. has been conferred on Dr. John J. R. MacLeod, professor of physiology, University of Toronto, by the University of Aberdeen.——Dr. Alexander D. Blackader, Montreal, has been appointed editor of the *Journal of the Canadian Medical Association*, and Dr. Alfred T. Bazin, managing editor.

Society News.—At the eighteenth annual meeting of the Saskatchewan Medical Association, Dr. William A. Harvie, Regina, was elected president to succeed Dr. Thomas W. Walker, Saskatoon, who was chosen honorary president for the coming year. Drs. Robert R. Stirrett, Swift Current, and Leonard A. C. Penton, North Battleford, were elected vice presidents. Dr. Alexander MacG. Young, Saskatoon, was reelected secretary-treasurer. The next meeting place will be Saskatoon, in June, 1926.——Dr. Newton A. Powell, Toronto, recently addressed the Lincoln County Medical Association on "The Medical Witness."

PHILIPPINE ISLANDS

Report on Treatment of Leprosy.—Among 2,810 patients receiving antileprosy treatment at Culion Leper Colony, 9.7 per cent. of the cases became negative, 62 per cent. were improved, 15.6 per cent. were stationary, and 12.6 per cent. were worse, according to the fourth progress report published in a bulletin of the Philippine Health Service. From May, 1921, to Oct. 31, 1924, 405 lepers at Culion were declared negative, and, at the time of this report, there were about 300 other cases considered negative by the attending physicians to be presented to the Negative Examining Committee. The best results have been obtained with the iodized chaulmoogra ethyl esters; the creosoted preparations also gave better results than the plain ethyl esters. There are two totally dissimilar groups of patients that respond favorably to treatment: (1) those who have had the disease less than five years, and (2) those who have had the disease twenty years or more. It was necessary, on account of complications, to drop 350 patients from the treatment clinics in the six months preceding this report. The main causes for suspending treatment were tuberculosis, protracted lepra reaction, and leprotic involvement of the eyes.

Tuberculosis Increasing.—The executive secretary of the Philippine Islands Anti-Tuberculosis Society says that tuberculosis mortality in that country is increasing. There were 29,752 deaths due to tuberculosis in 1920, or about 297 per hundred thousand of population. There are about 350 beds in both public and private institutions in the islands to care for about a half million consumptives, 150 of which are in the city of Manila for advanced cases, fifty at Baguio for incipient cases, a small number at Cuyo, and the antituberculosis society maintains a colony of twenty two-bed cottages for incipient cases and two forty-bed infirmaries for advanced cases. The antituberculosis society aims to cooperate with the government in solving the tuberculosis problem. The secretary believes that, in view of the lack of understanding of the disease on the part of the public and the "ready-made" excuse of lack of funds on the part of the legislature, the best means to demonstrate what can be done is to give a demonstration similar to that conducted by the National Tuberculosis Association in the United States at Framingham, Mass.

GENERAL

Subscription Price Increased.—The *Journal of Laboratory and Clinical Medicine* announces that its subscription price will be increased from $7 to $8.50 a year, beginning with the October issue.

American Board of Otolaryngology.—The next examination given by this board will be held at the Cook County Hospital, Chicago, October 19. Application should be made to the secretary, Dr. Hanan W. Loeb, 1402 South Grand Boulevard, St. Louis, Mo.

Society News.—The thirty-eighth annual meeting of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons will be at Hot Springs, Va., September 16-18. Among the speakers will be Drs. Palmer Findley, Louis E. Phaneuf, John F. Erdmann, Edwin P. Sloan, Walter T. Dannreuther, George F. Chandler, Ira L. Hill, John H. Outland, Edward L. Dorsett and William S. Bainbridge.

Accidents in Industry.—The Department of Commerce announces that there were twenty-four deaths and 1,645 injuries in 1924 among persons engaged in the manufacture of coke in the United States, a lower death and injury rate for that industry than in any other year. There were 20,451 men employed in making coke, who worked an average of 303 days per man. The loss of time from all fatal and nonfatal accidents at coke ovens was estimated by the Bureau of Mines as 195,248 days.

Hospitals in Foreign Lands.—The Board of Foreign Missions of the Methodist Episcopal Church administers thirty-five hospitals in foreign lands, which in 1923—the last year for which figures are available—cared for 12,961 patients, 12,334 outpatients and 145,334 dispensary first calls. In hospitals administered by the Women's Foreign Missionary Society of this church, there were 16,550 patients, 6,346 outpatients and 93,941 dispensary first calls; hospitals of this church in the United States served 250,000 people, making a total of 537,446. Hospitals and dispensaries in foreign lands are conducted in Africa, Mexico, Chile, India, Netherlands, Korea, Philippine Islands and in eastern, northern, western and southern China.

Death of Professor Chandler.—Charles F. Chandler, emeritus professor of chemistry at the New York College of Pharmacy, the College of Physicians and Surgeons and the School of Mines at Columbia University, died at Hartford, August 25, of nephritis, aged 88. Dr. Chandler was for forty-four years an active member of the faculty of the New York College of Pharmacy, for many years its president, and was largely responsible for its consolidation with Columbia University in 1904. He was chemist of the New York Board of Health from 1866 to 1873, and its president until 1884. Various institutions honored Dr. Chandler, among them Oxford University and the University of Göttingen; he was awarded the Perkin medal for valuable contributions to applied chemistry.

Automobile Fatalities.—The Department of Commerce has published the reports of automobile fatalities received from seventy-seven cities of 100,000 population or more. In thirty-six cities, there was an increase for the four weeks ending August 15 over the previous period of four weeks; in fifty-seven cities, aggregating a population of 27,000,000, there were 2,878 automobile fatalities from January 1 to August 15, as compared with 2,885 from Jan. 1 to Aug. 31, 1923; in sixty-six cities in which comparisons are possible for 1923 and 1925, thirty-six show more fatalities from January 1 to August 15 than in the first eight months of 1923. Norfolk, Va., had no fatalities in the last eight weeks covered by their report, and St. Paul, San Antonio, Dayton, Houston, Lynn, Waterbury and New Bedford reported none in the last four weeks. New Bedford, with two deaths, still holds the record for 1925. So far this year, New York has reported 559 deaths, Chicago 344, Philadelphia 173, Detroit 158 and Los Angeles 139.

Fourth of July Accidents.—The National Committee for the Prevention of Blindness and the American Museum of Safety have just issued a joint statement about the last Fourth of July accidents. Reports from 500 cities in thirty-six states were analyzed. There were 111 persons killed and 1,030 injured from the use of fireworks; of the injured, 148 will probably lose the sight of one or both eyes, seventy-nine lost an arm, leg or fingers, two lost their hearing, and one lost the power of speech. Of the 111 persons who died, thirty-seven were burned to death when their clothing caught fire from so-called "harmless" sparklers, other fireworks and bonfires; twenty-five deaths were due to tetanus following burns from blank cartridges, firecrackers and gunshot wounds, and nineteen persons were mutilated and killed by premature explosions; eight persons were shot, and six died of poisoning from eating firecrackers. The casualties were mostly in children in the smaller cities where fireworks are still being sold to children of any age. Reports were not received from twelve states, many of which are in the South, where there are few restrictions on the sale of fireworks. Were it possible to have obtained a complete report, it would have been found, the statement adds, that several hundred persons were killed and several thousand injured during the last Fourth of July celebration.

Prevention of Delinquency.—Under the auspices of the Commonwealth Fund Program for the Prevention of Delinquency, ten cities have just completed three-year demonstrations of "visiting teacher work" and have decided to continue to use visiting teachers as a regular feature of their public school system. The cities are Lincoln, Neb.; Richmond, Va.; Kalamazoo, Mich.; Sioux City, Iowa; Sioux Falls, S. D.; Burlington, Vt.; Hutchinson, Kan.; Warren, Ohio; Red Bank, N. J., and Bluefield, W. Va. Demonstrations are going on in twenty other communities which, when finished, will complete the Commonwealth Fund program of visiting teacher demonstrations. The visiting teachers were appointed by the National Committee on Visiting Teachers and approved by local authorities; two thirds of the salary of a teacher for a three year period was being paid by the National Committee, and the remainder by the local school board. Several hundred cities applied for demonstrations under this plan, but only thirty were selected. There are now 186 visiting teachers in the United States, in sixty-four cities and six counties in thirty-four states. The Joint Committee on Methods of Preventing Delinquency, New York, has just published a volume on "The Problem Child in School." The visiting teacher is considered a specialist in problems of unadjusted children. She finds out why things are not going right and informs the class teacher or parent or social agency. The first visiting teachers began work in New York, Boston and Hartford in 1906-1907; in 1921, the Commonwealth Fund included this work in its program for prevention of delinquency.

Conference on Standardization of Tuberculin.—A conference will be held at Washington, D. C., October 16, to consider the subject of fixing a definite standard for tuberculin. The conference is called by Dr. Hugh S. Cumming, Surgeon General, U. S. Public Health Service, and will be attended by two members of the Rockefeller Institute, two from Johns Hopkins University, two from Harvard Medical School and two tuberculin specialists from the Department of Agriculture. The sole question to be considered by the conference is whether or not a definite standard for tuberculin may be established. Heretofore the opinion has been maintained by the Department of Agriculture that it is unwise to attempt to fix a special standard for tuberculin in the United States, because it is uncertain that any fixed standard would be correct; the department has attempted to establish certain policies for fixed control of tuberculin and has maintained certain methods to test the potency of tuberculin. The original proposal for standardization of tuberculin comes from the medical section of the League of Nations. The October conference at Washington on tuberculin is called with the approval of the American Tuberculosis Association, and it is understood that that organization, because of the importance of the subject matter to be discussed, has volunteered to pay the expenses of the conference. According to present arrangements, those attending the conference will be: Dr. Reid Hunt, department of pharmacology, Harvard Medical School; Esmond R. Long, Ph.D., University of Chicago; Dr. Ludvig Hektoen, John McCormick Institute, Chicago; Theobold Smith, Rockefeller Foundation for Medical Research, Princeton, N. J.; John R. Mohler, chief, bureau of animal industry, Department of Agriculture; E. D. Schrader, Dr. Marion Dorset, Dr. William Charles White and Dr. George W. McCoy, all of the Department of Agriculture, and Dr. Hugh S. Cumming.

LATIN AMERICA

Personal.—Dr. J. Denegri, president of the Academia de Medicina of Peru, and Dr. Paz-Soldán, editor of the *Reforma Médica*, are organizing a postgraduate assembly at Lima, a kind of medical and clinical week.

New Health Journal.—The department of health of Porto Rico has announced the establishment of a monthly publication known as the *Porto Rico Health Review*. According to the U. S. Public Health Service, the first number describes the work done on that island in combating hookworm, tuberculosis, plague and venereal disease.

Chair of Professional Ethics.—The *Revista de la Asociación Médica* de Bahia, Brazil, reproduces an appeal by Dr. Varsi, member of the governing board of the Universidad del Litoral, for the foundation of a chair of professional ethics in the university. He explains how instruction and training in professional ethics are even more necessary than other chairs for preparation for practice.

FOREIGN

French Neurology Congress.—The thirtieth annual meeting of the alienists and neurologists of French-speaking countries is to be held at Geneva and Lausanne early in August, 1926. "Schizophrenia" and "The Babinski Sign" are the two topics appointed for discussion. The secretary is Dr. Repond, Malevoz-Monthey, Switzerland.

Medical Officer to Retire.—Sir William H. Hamer, medical officer of health to the London County Council, and for thirty-three years connected with that office, is to retire to private life. He will carry with him, says the *Lancet*, the good wishes of all who know the efficiency of his work and who have experienced the courtesy of his methods.

Report of the Netherlands Council on Pharmacy and Chemistry.—In addition to reports of analysis of a large number of proprietaries, several household remedies in the East Indies have been studied, as also has the alleged action of *Polygonum aviculare* in combating diabetes. Extensive investigations were also made on the standardization of pituitary preparations, and on the influence of mercury on malaria, especially in connection with malaria treatment of general paralysis.

International Postgraduate Courses.—International postgraduate courses in Berlin will be organized for October, with the active support of the faculty of medicine of Berlin University. There will be courses and practical exercises in all medical branches, a series of lectures in internal medicine, a systematic review of the progress of medicine and technic, and a postgraduate course for ophthalmologists. Correspondence should be addressed to the International Postgraduate Courses, Berlin N.W. 6, Kaiserin Friedrich-Haus.

Measles Serum.—The *Medizinische Klinik* quotes Dr. F. Rohr's description of the arrangements at Kassel for supplying physicians with convalescents' serum for the prophylaxis of measles. The attending physician sends to the Diagnostic Institute blood taken from his measles patients between the fifth and the twelfth day of convalescence. This is tested for hemolysis, then filtered, phenolized and kept ready for use. The unit of serum is 3.5 c.c., the amount necessary to protect against measles a child of 3½ at the fifth day of incubation. The injection of the serum is said to confer protection for months.

Far Eastern Association of Tropical Medicine.—The sixth congress of this association will meet in Tokyo, October 11-13, under the auspices of the Japanese government. The committee on beriberi, approved at the last congress in Singapore in 1923, and comprising a representative of each government interested, will report at this congress. There will be an exhibition of materials pertaining to the medical history of Japan, including species of parasites, medicinal plants, statistics, and instruments and apparatus manufactured in that country. The special subjects for discussion include the prevention and extermination of malaria, the diagnosis of amebic dysentery, the control of beriberi, and the compilation of statistics on tuberculosis.

The International Gynecology and Obstetrics Foundation.—The first international congress on gynecology and obstetrics was organized in 1892 by the initiative of the Société belge de gynécologie et d'obstétrique. A number of persons donated 300 francs each to promote these congresses, and this foundation now amounts to 30,000 francs, invested in Belgian government bonds. The income is to be used to pay the fees of the charter members and life members who have contributed to the foundation, and to award a prize at each congress for distinguished work in gynecology or obstetrics. The war interfered with the congress which had been planned at New York in 1915. The committee in charge of the fund is Prof. A. Martin, Berlin, Prof. L. Mangiagalli, Milan, and the Belgian Gynecology and Obstetrics Society, which has taken the place of the third member of the committee, Prof. C. Jacobs who died recently. The society is now the official guardian of the fund.

Personal.—The *Revista Española de Medicina* states that Drs. Lozano, Vecino and Pi Suñer have been appointed delegates from the University of Zaragoza to the approaching bicentennial of the Academy of Sciences at Leningrad.——The name of Dr. C. M. Cortezo has been given to the street on which he was born in Madrid. He is the director of the *Siglo Médico*, senator for life, and long member of the cabinet.——A tablet was recently unveiled on one of the principal streets of Valencia in honor of Dr. Ramón y Cajal, who shared with Golgi the Nobel prize in 1906.——Dr. T. Madsen of the Copenhagen state serum institute has been elected honorary member of the Belgian Académie de médecine.——The prize offered by the Berlin university for the best study of "The Diagnostic Import of the Blood Picture for Otogenous Affections" was awarded to Else P. Levy and to Eleonore von Balden. Each was given the full prize, which was duplicated by the authorities for the purpose.——A street in Brussels near the university has been renamed in honor of the late Prof. A. Depage.——Dr. H. Vincent, chief of the military medical service in France until his recent retirement, has been decorated as commander of the Order of the Crown of Belgium. He introduced antityphoid vaccination into Belgium.

Deaths in Other Countries

Dr. **William W. Westcott**, one of the most active coroners of London and an authority of medicolegal matters, recently, aged 77.——Dr. **G. Urban**, Hamburg, surgeon in chief of the Marien Hospital.——Dr. **O. Naumann**, Berlin, long in charge of the university branch of the department of education, aged 74.——Dr. **Le Clerc-Dandoy**, professor of urology at Brussels and president of the Belgian Urologic Society.

Government Services

For Duty with Troops

The following officers of the Army Medical Corps who were excepted from duty with the troops, according to the *Army and Navy Journal*, are removed from the list: Lieut.-Cols. Charles R. Reynolds, Carroll D. Buck, Jacob M. Coffin, James D. Fife; Majors Lucius L. Hopwood, Henry C. Pillsbury, William H. Richardson, William K. Bartlett, Arthur P. Hitchens, William O. H. Prosser, Tom S. Mebane, Charles W. Sale, Raymond F. Longacre, Roy T. Morris, Peter D. MacNaughton, Arthur N. Tasker, Arnold D. Tuttle, Webb E. Cooper, William L. Sheep; Capts. Frank McA. Moose, Arthur H. Nylen, Frank P. Strome, John L. Meddaugh, John B. Powers, Pernier A. Mix, Wilmer C. Dreibelbies, Hugh M. Bullard and James F. Brooke.

Patients in Army Hospitals

There were 5,347 patients in army hospitals in the United States, August 8, according to the Surgeon General's Office, and of these 2,549 were on the active list of the army or navy; 1,980 were beneficiaries of the Veterans' Bureau, 125 beneficiaries of the Soldiers' Home, and 693 civilians, retired army and navy officers, dependents of officers, national guard and others; 3,720 of these patients were in general hospitals, including the Station Hospital, Fort Sam Houston, Texas, and of these more than 50 per cent. were beneficiaries of the Veterans' Bureau or Soldiers' Home.

New Immigration Methods

Announcement is made by the U. S. Public Health Service that Surgeon Samuel B. Grubbs, chief quarantine officer located at New York, has been placed in charge of foreign quarantine and immigration for the U. S. Public Health Service. Dr. Grubbs will give special attention to the new policies of the government which include the medical examination of immigrants abroad which has recently been undertaken by the State, Labor and Treasury departments. He is qualified for this work by reason of long experience as chief quarantine officer at New York City, and the fact that he was previously chief health officer for Porto Rico. Dr. Grubbs has, at his own expense, traveled extensively in Europe to observe and study immigration and quarantine questions. He is an accomplished linguist, speaking Spanish, German and French. Reports from U. S. Public Health officials in Ireland, Scotland and England received by the Public Health Service at Washington, indicate that the new methods employed in the selection of immigrants abroad are meeting with success. The new plans permit the American consular officer, representatives from the U. S. Bureau of Immigration and medical officers of the Public Health Service to inspect immigrants about to proceed to the United States. These officials on interviewing prospective immigrants abroad are in position to select desirable men and women to proceed to the United States; such persons, in the opinion of government officials, will make more acceptable American citizens than those selected under the methods of inspection and medical examination at Ellis Island, New York.

Change of Station in the Navy

The Bureau of Medicine and Surgery of the navy has recommended the transfer of Commander Richard A. Warner from the Naval Hospital, League Island, Pa., to the Naval Hospital, Annapolis, Md.; of Commander William J. Zalesky from the receiving barracks, Hampton Roads, Va., to the U. S. S. *Mercy;* of Commander Joseph P. Traynor from the Naval Hospital, New York, to the Naval Hospital, Boston; of Commander George L. Wickes from the Naval Training Station, Newport, to the U. S. S. *Utah;* of Commander Benjamin H. Dorsey from the U. S. S. *Utah* to the Naval Torpedo Station, Newport, R. I. Lieut. Albert J. Desautels, Naval Hospital, New York, has been ordered to the James Buchanan Brady Urological Institute, Baltimore, to attend a course of instruction; Lieut. Commander Clarence W. Ross from the Naval Hospital, Great Lakes, Ill., to the U. S. S. *Savannah.*

Foreign Letters

PARIS

(From Our Regular Correspondent)

Aug. 13, 1925.

Aviation in the Army Medical Corps

Dr. Chassaing, member of the chamber of deputies, who has recently returned from Morocco, has rendered a report to the minister of war on aviation in the army medical corps; during the Great War he established the first bases in France and in Morocco.

In the present campaign against the Riffians, the transportation of the wounded by aeroplane has been carried out on a large scale, and for this purpose the same machines have been employed that were displayed at the exhibit of sanitary equipment held in connection with the recent congress of military medicine and pharmacy.

For the period from April 30 to June 5, the number of wounded evacuated from the northern front to the hospitals of Fez, Meknes and Taza was 346, which constituted almost all the severely wounded, or 5 per cent. of the total number wounded, which is the ordinary proportion. The evacuation was made usually in a nonstop flight, a light Henriot plane being employed to supplement the limousine plane in regions in which the latter would have difficulty in landing. The days on which the greatest number of wounded were evacuated were: May 21, twenty-two wounded evacuated to Fez; May 26, thirty-seven to Meknes; May 27, twenty-two to Meknes, and June 5, twenty-two to Fez. As a result of this rapid means of transportation, some of the wounded were hospitalized and operated on the same day they were injured. The reduction in the time required for transportation is one of the main reasons for the low percentage of operative mortality (3 per cent.). Scarcely too much can be said in praise of the courage of the pilots of the planes of the army medical corps, who constitute an élite body of men, at the head of whom is Colonel Armengaud, who is ably seconded by Chief Physician Epaulard.

The Paris Institute for Cancer Research

Only recently has the world begun to take account of the extreme gravity of cancer. In France, only three years ago, at the instance of Professor Bergonié, the anticancer crusade finally began to take on a practical and effective form. Through the cooperation of Senator Paul Strauss, then minister of public health, regional centers against cancer were organized in a number of French cities. M. Jean Varenne has recently submitted to the Conseil général of the Seine a proposal looking toward the creation of an institute for the study and treatment of cancer. This foundation would be under the general control of the chair of pathologic anatomy of the Faculté de médecine of Paris. In order to be in a position to carry on the types of social work expected of it, such an institute must be a sanatorium, a research laboratory and a center of instruction, all in one.

Varenne holds that, in view of the importance of the development of the anticancer crusade in France, the time has arrived for the general council of the Seine to make a renewed effort, and to endow the department of this institute for the study and treatment of cancer in a manner similar to the institutes that exist in certain foreign countries. He transmitted recently to the general council of the Seine the following proposal which, at his request, was referred to the administration:

The administration is urged to consider (1) the creation of an institute for the study and treatment of cancer, such institute to be under the direction of the chair of pathologic anatomy of the Faculté de médecine, and (2) the gratuitous concession by the department of the site needed for the construction of this institute and its participation in the costs of construction, in the form of a subvention granted the committee on organization specially and legally constituted to collect the funds for the institute.

The Eighteenth French Congress of Medicine

The eighteenth French Congress of Medicine has just been held at Nancy. It was one of the most successful meetings ever held. It opened July 16, under the chairmanship of Dr. Simon, professor at the Faculté de médecine of Nancy. Four hundred and fifty-five members responded to the invitation of French-speaking physicians and sixteen different nations were represented by the highest medical authorities.

After the addresses of M. Charles Adam, rector of the University of Nancy, and of M. Spillmann, dean of the medical faculty, M. Henrijean of Liége referred, in well chosen words, to the close bonds uniting the scientists of Belgium and France, and Dr. Lesage, speaking in behalf of the government of Canada, whose official delegate he was, brought out in a forceful address the common origin, the common culture and the common feelings which united Canada and France.

After other addresses, in which Dr. Praum, representative of the Grand Duchy of Luxemburg, referred to the many bonds uniting Lorraine with his native country, and Professor Simon gave a critical account of humoral theories from the beginnings of medicine down to our own day, the visitors at the congress were conducted to the Hôpital Civil, where they inspected the numerous services, most of which are provided with the most modern equipment, while others are in process of transformation to meet the enlarged needs of the times.

The afternoon of the same day, the congress reassembled in the amphitheater of the Faculté de médecine, where papers on angina pectoris were presented by M. Gallavardin, hospital physician in Lyons, and Richon, professor at the Faculté de médecine of Nancy.

The day following, the assembly listened to papers on acidosis by Messieurs Labbé and Nepveux of Paris, M. Dautrebande of Brussels and Dr. Petren of Sweden. An animated discussion followed the reading of the papers.

The visitors were then invited to inspect the annexes of the Hôpital Civil; among others, Hôpital Villemin with the services directed by Parisot and Perrin, reserved for tuberculous patients, in the midst of vast sunlit gardens. The model dispensary annexed to these services is directed by Dr. Parisot, who gave an account of the work accomplished in the antituberculosis campaign by the bureau of social hygiene of the department of Meurthe and Moselle. The Hôpital Maringer was the next visited. Here the center of interest was the clinic of dermatology and syphilography, together with the Fournier dispensary, which has been organized and equipped according to the plans of Dr. Spillmann and constitutes a model dispensary, with its consultation rooms and its large and modern laboratories.

In the Anatomic Institute, an interesting exhibit of scientific instruments and of pharmaceutic products was displayed.

The afternoon of the second day, an excursion was organized and a visit was paid to the Grand Couronné of Nancy and the Léomont farm, where the story of the bloody battles of 1914 was rehearsed. That evening all attended a gala performance at the Grand Théatre.

The third day, the papers of Drs. Bezançon and Jong, and of Drs. Parisot and Caussade on pulmonary gangrene were presented and discussed. In the evening, the different sections met in the various amphitheaters. The section of infectious diseases convened in the grand amphitheater under the chairmanship of Prof. Pierre Teissier. The section of tuberculous diseases gathered in the Hôpital Villemin, being presided over by Professor Bezançon. The section of dermatology was held in the Hôpital Fournier, under the chairmanship of Thibierge and Darier. The section of neurology, endocrinology and social medicine met in the small amphitheater, under the chairmanship of M. Crouzon.

Later in the evening, a banquet was held, at which the addresses of the foreign delegates were well received.

The following day, two excursions were organized, one to Donon and the other to the Vosges Mountains, including the mountain resorts Contrexèville and Vittel, after which the congress disbanded.

LONDON

(From Our Regular Correspondent)

Aug. 22, 1925.

Foreign Public Medical Statisticians

A luncheon has been given by the government in honor of the foreign public medical statisticians visiting this country under the auspices of the League of Nations. The guests were: Dr. S. Rosenfield, Austria; Dr. Camille Jaquart, Belgium; Dr. H. J. Hansen, Denmark; Dr. T. H. C. Stevenson, England; Dr. Martti Kovero, Finland; Dr. M. Huber, France; Dr. E. Roesle, Germany; Dr. Cunnar Jahn, Norway; Dr. J. C. Dunlop, Scotland; Dr. E. H. N. Arosenius, Sweden; Dr. Marcel Ney, Switzerland; Dr. W. H. Davis, United States; Dr. A. Aguirre-Sayago, Chile; Dr. Martin Kacprzak, Poland, and Mr. K. Stouman and Mr. J. Pagnod, League of Nations. Dr. J. Stouman, member of the Health Section, League of Nations, expressed appreciation of the welcome they had received in this country. In the studies they were making in public health they had toured widely in northern Europe, but they came to this country remembering that it was here, by the work of an expert committee, that the health side of the League of Nations was first set afoot, and he knew full well that that side of the work always found enthusiastic support from the government of this country.

Irish Physicians and the British Medical Register

In previous letters, the serious problem that has arisen for Irish physicians in consequence of the abolition of the union and the establishment of the Irish Free State has been described. More than half the physicians who qualify in Ireland at once leave the country to practice in other parts of the empire, mainly in Great Britain. Under the union it was just as easy to practice in Great Britain as in Ireland, as there was a single medical register and the Irish physicians and medical schools were subject to the general medical council, which sits in London. The establishment of the Free State annulled the authority of the general medical council in Ireland, and therefore physicians subsequently qualifying in Ireland became ineligible for the British register. This caused alarm in Irish schools, whose teachers declared that they would be ruined. The result was that the Irish government was induced to introduce a bill into the dail authorizing the general medical council to continue its jurisdiction in Ireland for a year—an arrangement in which the council aquiesced, thus enabling things to continue as before (The Journal, Sept. 20, 1924, p. 933). The irony of the situation was pointed out. Here were politicians who had been passionately asserting that what was wrong with Ireland was English rule now acquiescing in the doctrine that in one sphere, at any rate, its removal meant ruin. However, it seems that this inconsistency will not last. The Free State government has announced its intention to establish a separate medical register. This has provoked grave alarm in Ireland throughout the medical profession and in the universities. The Irish medical profession was, as it is now, unanimous in its anxiety to retain the enormous advantages of the British medical register, and nobody supposed that the Free State government would raise the slightest difficulty. To everybody's surprise, however, it moved slowly and reluctantly. The bill that it introduced in the Free State parliament provided for the reestablishment of the British medical register for a period of only twelve months, and was passed only in the nick of time. Now comes Mr. Cosgrave's startling announcement. He states that the executive council had decided "not to seek the continuance of the United Kingdom arrangement, whereby the medical profession of Ireland, with certain representation, was controlled by the British general medical council." Mr. Cosgrave explained his government's position in the following words: "That an important profession within the state should have its center of gravity and disciplinary headquarters in the capital of another country is felt to be so incompatible with our constitutional status that we must be prepared to face whatever minor and temporary disadvantages may accrue from the cessation of that arrangement." Mr. Cosgrave, while admitting that disadvantages might accrue from the new arrangement, declared that misdirected zeal on the part of the advocates of the old arrangement would be to blame if parents and students should feel misgivings about the future status of the medical profession in the Free State. "The executive council," he added, "anticipates no serious reactions from the establishment of a self-contained and self-controlled medical authority in this country," and he concluded that the new settlement would be a matter for negotiation between the Free State and imperial governments.

The Free State government has done many controversial things, but this decision is by far the most serious challenge that it has yet offered to educated public opinion. Among all classes, the privileges of the British medical register are deeply valued in Ireland. These privileges have conferred on Irish physicians a status superior to that of colonial physicians, and have opened to the Irish medical profession the immense field of the British empire, and the British medical services, military and civil, in all parts of the world. At the present moment the naval, army and air force medical services are manned largely by graduates of the Irish medical schools. It is calculated that today the Free State can find employment for not more than twenty of the 150 physicians who graduate annually from its medical schools. The probable results of any diminution of the status of Free State physicians will be as follows: A large number of boys intended for the medical profession will be sent immediately to English and northern Irish schools. There will be an exodus of Free State medical students to London, Edinburgh and Belfast. The medical schools of Dublin and Cork will receive a staggering blow. Dublin University and the National University will suffer heavy losses of money and prestige, and, of course, a new barrier will be erected against the ultimate unity of the two Irish states.

This decision has produced a burning political question of the first importance in Ireland, while England is a scarcely interested spectator. The Irish newspapers are full of protests by leading physicians; regardless of their political opinions the whole medical profession is up in arms. The government's action seems to have been inspired by the desire to deprive the republicans of a taunt and to propitiate the extremists of its own party. The blow which the Irish schools are likely to receive by loss of Irish students will be increased by the fact that during the last twenty years the number of foreign students in Dublin, notably of South Africans from Stellenbosch and other African universities, has been steadily increasing. If such students find themselves deprived of the advantage of the British medical register, they will transfer themselves to Belfast or some other university. However, the fact must be remembered that if the Free State establishes a separate register it will be open for

Ireland to apply to England to have its qualifications recognized on a reciprocity basis, like those of other dominions. At present a physician holding a colonial medical diploma, on showing that he is of good character, can on payment of a fee be registered as a colonial practitioner in the United Kingdom. But this will involve some disadvantages compared to the present position of full equality with English qualifications.

Motor Road Accidents

The alarming increase of motor road accidents in this country has been commented on in previous letters. The latest figures unfortunately show that the increase continues. The following table for Great Britain, compiled by the National "Safety First" Association, shows the increase in the number of street accidents in which mechanically propelled vehicles (excluding street cars) were involved, compared with the increase in the number of such mechanically propelled vehicles:

	1918	1921	1922	1923	1924
Number killed	1,144	2,091	2,222	2,435	3,019
Number injured	13,098	36,609	42,058	53,084	64,318
Total accidents	14,242	38,700	44,280	55,519	67,337
Number of vehicles.....	......	860,082	962,115	1,127,590	1,312,357
Accidents per thousand vehicles	......	44.9	46.0	48.4	51.3
Fatalities per thousand vehicles	......	2.4	2.3	2.2	2.3
Vehicles per accident...	......	22	22	20	20

No reliable figures are available for vehicles prior to 1921 to compare with the accident returns. Within the limitations of statistical deductions, the following points arise: (*a*) In six years the fatalities in which motor vehicles were involved have nearly trebled, nonfatal accidents being nearly five times as many. (*b*) Comparing 1924 with 1921, the number of mechanically propelled vehicles has increased by 52.5 per cent., of fatalities by 44.4 per cent., of accidents by 75.5 per cent. (*c*) The fatality ratio per thousand vehicles is nearly stationary. It is still double the corresponding figure for the United States, which in 1924 was 1.0, having fallen steadily from 2.4 in 1915. (*d*) The accident ratio per thousand vehicles is tending to increase somewhat. This may possibly be due partly to recording of a higher proportion of street accidents. The number of fatal accidents is always known to the police, but numbers of nonfatal accidents never come to their knowledge. (*e*) The truest indication of risk would be the combination of accidents with the mileage covered by vehicles, rather than with their number. It is quite possible that the present-day average mileage of a motor vehicle is much more than in the past. These figures are disquieting. The average risk of accident with any given motor vehicle is increasing. This not only shows the necessity of adopting as quickly as possible every approved device and method, such as the white line, traffic control at crossroads, the off-side rule, calculated to make our roads safer, but extending the campaign for inculcating road sense to driver, cyclist, pedestrian—in fact, to all road users. That view the National "Safety First" Association has been steadily keeping before the public for many years. In London, where we are better organized than in the provinces, the accidents are proportionately lower. This seems to be due to educative work by the National "Safety First" Association in the schools and among the drivers of vehicles. The London bus drivers are the safest in the country. Each man undergoes a course of safety training before he is allowed on the road, and the "freedom from accidents competition" of the association is a corollary of their training course. Similar training has now been organized in Glasgow, Liverpool, Manchester, Leeds and Huddersfield. Councils for the purpose are in process of formation in Edinburgh, Sheffield, Leicester, Halifax and Newcastle. More and more safety is being taught in schools, and the association's safety codes and posters are sought in larger numbers. But we are still a long way behind America in public safety organization, and the fatality ratio in that country is lower than ours in spite of their larger number of cars.

A "World List" of Scientific Periodicals

Some time ago I reported the initiation of a scheme to prepare a list of scientific periodicals publishing scientific research, with an indication of libraries in this country where they are filed. The Conjoint Board of Scientific Societies prepared the scheme, with the assistance of a committee representing different branches of science and with the expert guidance of the keeper of printed books at the British Museum. It was found that the idea was practicable: that a sufficient number of institutions and persons in Great Britain and in foreign countries would welcome the preparation of a list. The trustees of the British Museum recognized its importance to science and to bibliography as so great as to justify the compilation being made part of the official duty of the museum staff. But commercial success could not be expected for so costly a piece of printing. The trustees of the Carnegie United Kingdom Trust reduced this difficulty by promising on certain conditions a grant of $5,000. The Conjoint Board came to an end before the completion of the great scheme which it had developed, but before its decease handed over the enterprise to three trustees, who have carried it to completion. The result is the first volume of "A World List of Scientific Periodicals" issued by the Oxford University Press. It contains, arranged alphabetically, the full titles of no fewer than 24,028 periodicals in existence from 1900 to 1921, publishing the results of scientific research. It is to be followed before long by a second volume, which will give a standard abbreviation for each title. But a much wider question is raised by the vast number of periodicals that have been found to exist. The connotation of the term "scientific" has been taken from the International Catalogue of Scientific Literature, and the international experts who fixed the definition did not err on the side of leniency. It may be assumed that every one of the 24,000 periodicals publishes regularly or occasionally contributions to scientific knowledge which ought not to be overlooked. The total number is much greater than was anticipated. Even if there were an exact classification of the sciences, and if each periodical confined itself to a definite branch, the number of publications to be examined by any one who wished to follow what was being done in his own branch of research would be impossibly great. But the branches of science themselves overlap. Chemistry and physics intergrade; the biologist has to take and give and be in touch with almost every department of science. There is no safe way of insuring that all contributions to scientific knowledge may be at the disposal of the researcher other than the provision of accurate, ample and classified indexes to periodical literature. No doubt, in certain cases, abstracts of the published results of research are useful; but an index to the abstracts is as necessary as to the periodicals, and to abstract all periodical literature is a task gigantic beyond possibility. At present, when even the most comprehensive library contains only a proportion of existing periodicals, the abstracter or indexer has to wander from library to library. The second volume of the "World List" will help him by showing where particular periodicals may be found; but even with this knowledge the attempt to index the new papers on a single subject, for example, ornithology, requires visits to some six or seven libraries in London. Outside London the difficulties are even greater. The only possibility of the prompt, adequate and complete indexing of scientific research would be provided by a central library containing all the periodicals.

BERLIN

(From Our Regular Correspondent)

Aug. 15, 1925.

Professor Bier's Attitude Toward Homeopathy

An article in the *Münchener medizinische Wochenschrift* by Professor Bier on the subject "What attitude shall we take toward homeopathy?" has awakened great interest. On the basis of his study of homeopathic works, particularly the original works of Hahnemann, and supported by the evidence of observations that he has made in treating general furunculosis with minute doses of sulphur and the results secured in the treatment with ether of bronchitis developing from anesthesia, Bier has reached the conclusion that homeopathy has good features which ought to be utilized by medical science. As was to be expected, the homeopathic physicians and the homeopathic journals have taken full advantage of this communication of the well known Berlin surgeon, whereas many practitioners have been puzzled by the Bier article. Any one who has followed the articles of Bier published in recent years will not be much surprised by his last publication, for in his earlier articles as well he has shown himself in his therapeutic proposals to be a rather too optimistic and not sufficiently critical observer. In his endeavor to be as just as possible toward therapeutists with opposing opinions, he has evidently departed somewhat from the paths of critical science, a finding that, in the case of an authority of his rank, presents serious aspects. Several articles have already appeared in opposition to his contribution on homeopathy. The Verein für Innere Medizin in Berlin took up the subject at a recent special meeting, at which Prof. Eduard Müller of Marburg and Prof. W. Heubner of Göttingen gave the main addresses. During the discussions, Bier made several attempts to defend himself against the attacks that have been made against him, but, as was to be foreseen, he did not meet with much success. Professor Goldscheider emphasized that, even if Bier's observations on furunculosis and ether bronchitis should be confirmed, it would not signify anything for the school of homeopathy. The fundamental principles of this so-called doctrine are, he alleged, just as untenable as they ever were, and, in general, medical science must refuse to accept or recognize systems of any kind, whether homeopathic or otherwise. That Bier's attitude will affect other milieus besides the homeopathists is certain. The quacks will make the most of the pronouncement, and will proclaim that the old school, as in its judgment of homeopathy, will be compelled to change its attitude toward "eye diagnosis" and other swindles, which is much to be regretted.

Infant Mortality in Berlin in 1924

According to a recent report in the *Deutsche medizinische Wochenschrift*, as rendered by Dr. Wiese, assistant in the orphans' and children's asylum of Berlin, the mortality of infants of legitimate birth in Berlin for the year 1924 was considerably lower than the prewar rate. As a result of the decrease of deaths from nutritional disturbances, the summer peak of infant mortality has not been in evidence since the war. However, the mortality of infants from influenza and pneumonia, during the years immediately following the war, was considerably increased, so that the mortality of infants born in wedlock was somewhat higher than before the war. With the subsidence of the influenza wave of 1923 and 1924, the number of deaths from influenza and pneumonia fell back to the prewar rate, with the result that for the year 1924 a marked decrease in the infant mortality was noted.

Whereas, before and since the war, the mortality rate from infectious diseases was 7 per thousand living legitimate births, the corresponding rate for 1924 was only 2.7. For Old Berlin the mortality per thousand living legitimate births from the two specific causes, lack of vitality and syphilis, was as follows:

	1912	1913	1922	1923	1924
Lack of vitality..............	34	32	34	33	27.9
Syphilis	2.1	2.1	4	3.7	3.6

In 1924, the mortality of infants born out of wedlock dropped almost to the prewar standard. The chances of life for illegitimate infants in Old Berlin in 1922 were 2.6 times worse, and in 1923 and 1924 they were still 2.4 times worse than for legitimate children. In 1913 the corresponding ratio was 1.7 to 1. The greatly increased mortality among illegitimate children was due, in Group 1, to influenza and pneumonia, and infectious diseases, and, in Group 2, to lack of vitality (premature birth, conditions of birth, congenital weakness, and errors in diagnosis) and syphilis. As regards Group 1, the economic distress due to inflation had disrupted family care, for, as a result of the constant depreciation of the mark, the boarding out system could not be adequately maintained. This led to a widespread hospitalization of illegitimate children. The existing good institutions for infants became overcrowded. New homes had to be founded, and these were not always equal to the very difficult task of caring for large groups of infants. The wide prevalence of influenza in those years added greatly to the difficulties. There resulted, consequently, a marked increase of deaths from influenza and pneumonia, and, owing to the crowded conditions in the institutions, also from infectious diseases. It is not at all out of place to speak of an "inflation mortality." With the reconstruction of family care after the period of inflation had been surmounted; with the subsidence of the influenza wave, and after the closing of some of the poorly organized homes, the situation improved at once. The mortality of illegitimate infants from influenza, pneumonia and infectious diseases decreased in two years by 62.1 per thousand living births, and in 1924 reached a figure that was only slightly higher than the prewar rate. The general mortality of illegitimate infants reached the prewar standard.

As a result of the long war, syphilis had become widespread. On account of the great difficulties of the situation, progress in combating this disease has been slow. Nevertheless, by 1924 the favorable results of the nationwide crusade had become apparent. Of 1,000 illegitimate living births, there died in Old Berlin:

	1912	1913	1922	1923	1924
From nutritional disturbances........	51	54	42	35	29.3

Of 1,000 living births, there died in Old Berlin from tuberculosis:

	1912	1913	1922	1923	1924
Infants of legitimate birth........	2.3	1.8	3.5	3.7	2.5
Infants of illegitimate birth.......	2.0	2.2	4.9	3.5	1.5

Tuberculosis as a cause of death increased after the war, but the increase is now being rapidly overcome. However, among infants tuberculosis plays a very unimportant rôle as a cause of death. It is worthy of note that tuberculosis is the only disease category in which the illegitimate do not present a higher mortality rate than the legitimate; sometimes the mortality rate of the former from this disease has been even lower than that of the latter, as was distinctly the case in 1924. The explanation for this lies primarily in the fact that a tuberculous illegitimate mother seldom carries her infant to term, and secondly because mother and child are commonly soon separated.

According to the data cited above, therefore, among legitimate children born in Old Berlin in 1924, lack of vitality, syphilis, influenza, pneumonia and tuberculosis are more prominent as causes of death than before the war, whereas nutritional disturbances and infectious diseases are less prominent. In the case of illegitimate children, the conditions with respect to tuberculosis and infectious diseases were just the opposite, the former disease having been less prevalent and the latter diseases more prevalent since the war than among legitimate children.

It is interesting to note the relative mortality that occurs during the first month of life. Of 100 infant deaths in Old Berlin, the number occurring during the first month of life for the years 1912, 1913, 1923 and 1924 was as follows:

	1912	1913	1923	1924
Legitimate children	36.8	37.4	39.2	45.9
Illegitimate children	43.2	40.5	41.3	50.0

The record for 1924 shows a considerable increase of the relative mortality occurring in the first month among children of legitimate birth, whereas the mortality in all the later months has decreased. On the other hand, among children of illegitimate birth not only the mortality occurring in the first month of life has greatly increased but also the mortality of the second half year has increased, both in relation to the number of living births and also proportionately. It will be readily apparent that these observations are of great practical value for the organization of welfare measures and the combating of infant mortality.

For the further reduction of mortality among illegitimate children, Wiese proposes the adoption of the following measures: Further and more energetic organization of family care; transference of infants needing institutional care to only the best homes; closing of the inferior homes; combating the increased winter mortality by prophylactic measures: adequate provision of vitamin C; prophylactic mercury vapor lamp treatment in winter; combating of syphilis in prenatal care; the general introduction of retroplacental blood tests (the Wassermann test and the Meinicke turbidity test), together with compulsory treatment; the early discovery of illegitimate children and their immediate admission to a welfare institution; combating of mortality during the first weeks of life through the adoption of the proposals of Rott: (1) prevention of premature birth through the prenatal care centers, and (2) the prevention of disease among the new-born through better training of midwives in infant care, and, finally, uniform and carefully collected statistics of caretaking institutions for infants, including maternity institutions.

A German Institute of Gynecology

Under the direction of the gynecologist Professor Liepmann, a German institute of gynecology, combined with a women's clinic, was opened the end of June. The object of the institute is to further the knowledge of the sociological aspects of the diseases of women and to elaborate measures for the prevention of such diseases. The scientific, and also the pathologic and biologic departments, are to be directed by Professor Kuczinski, departmental director of the Pathologic Institute of the Charité Hospital.

This innovation in itself is deserving of approval. Some misgivings are, however, aroused by the fact that the new creation has been established by the main league of the German health insurance societies and that its activities will consequently be in the service of the league. The institute appears, therefore, to be the beginning of an attempt on the part of the health insurance societies, now that they have their ambulatoriums in which patients are treated by special *Krankenkassen* physicians, to establish their own clinics, which will not only have a damaging effect on other specialists but will possibly reduce to an unfortunate extent the instruction material furnished by the university clinics. For the reasons cited, the medical profession of Germany is assuming an opposing attitude toward the new institute of gynecology, and several expressions of this feeling have appeared in the various professional journals. To show how the funds furnished by social legislation to the health insurance societies for public purposes are being employed in the institute, it may be stated that in the clinic beds for first-class patients have been provided and that at each bed a wireless telephone has been set up.

ITALY

(From Our Regular Correspondent)

Aug. 3, 1925.

The Italian Interuniversity Institute

A new institute has been established in Rome, which bears the name Istituto Interuniversitario Italiano. The object of the organization is to promote by direct and active methods all forms of higher learning, to bring about a better knowledge of Italian culture in foreign countries, and to further intellectual relations between Italy and other nations. It will organize courses of study for foreigners and nationals, and will coordinate and develop courses already established. The executive committee is composed of delegates from all the universities of Italy (both royal and private institutions), from institutes of higher learning, and from many other scientific organizations. Ex-Minister Gentile, who is a senator and the author of recent reforms in public instruction, has been appointed chairman of the administrative council of the institute. Among the members of the council is S. E. Fedele, the present minister of public instruction.

An Ovation to Professor Mangiagalli

In the Sforza Castle in Milan, a celebration was recently held in honor of Mangiagalli, who for forty-three years was professor of clinical obstetrics and gynecology and who at present is the rector of the new University of Milan. Mangiagalli was one of the founders of the Milan Atheneum, the first idea of which he conceived in 1882 but which did not become a reality until a year ago, at the time the ancient Istituto di studi superiori of Milan came finally to assume the rank of a university. On the occasion of the celebration, Senator Mangiagalli made gifts to the university totaling one million liras, stipulating that the earnings should be used in the administration of the university.

The Eleventh Centenary of the University of Pavia

The University of Pavia celebrated recently the eleventh centenary of its foundation, it having been organized as a school of higher learning by Lothair I, emperor of the west and king of Italy, in 825. The ceremonies were attended by the king; many civil, military and ecclesiastical authorities; the minister of public instruction, and representatives of Italian and foreign universities. Several speakers recounted the vicissitudes and told of the triumphs of the famous Ticinian atheneum (the ancient name of Pavia was Ticinum), pointing out the great influence on the world's culture exerted by this beacon, the light from which continued to pierce the darkness of the Middle Ages. In a courtyard of the university there was dedicated a monument in memory of Lanfranc and medieval masters of the Studio di Pavia. An honorary doctor's title was conferred on the king. Coincident with this celebration, the Società italiana per il progresso delle scienze held in Pavia its fourteenth convention, under the chairmanship of Prof. O. Solmi, rector of the university. The society is composed of fourteen sections, each of which held separate sessions. The new section of military science functioned for the first time.

A Physicians' Club House

The provincial medical association, with its seat at Milan, has taken the initiative and plans to erect in that city the first *casa del sanitario*, or club house for physicians, to provide a meeting place for physicians, Italian and foreign, who visit the capital of Lombardy. The club house will be furnished with all modern comforts, and will have a good library, a reading room and a large assembly room for lectures and conventions. A permanent secretary will be employed, who will supply visitors with all needed information. It is thought that similar institutions will likely be erected in other large cities of Italy. In the procuring of funds the *casa del sanitario* will be associated with "Il fanciullo d'Italia," a child welfare organization, which plans to construct and turn over to the state large numbers of child welfare institutions, so that all communities of Italy may be provided for.

Guglielmo Romiti, Professor of Anatomy

The University of Pisa and the Citizens' Guild joined forces recently to give an ovation to Prof. Guglielmo Romiti, who, having passed the age limit, has resigned his professorship in the university.

Romiti was born at Pisa in 1850. After graduating in medicine and surgery, he attended successively the universities of Vienna, Strasbourg and Berlin, where he specialized in normal human anatomy. On returning to Italy, he became anatomic inspector at Florence, and later an assistant at Parma. In 1877 he secured the chair of anatomy in the University of Parma, and in 1886 he accepted a similar call to the University of Pisa. He became the founder of the Italian school of anatomy, and enjoyed the honor of receiving as pupils many of the leading university professors of Italy: Chiarugi of Florence, Lapi of Genoa, Bertelli of Padua, Pardi of Pisa, Valenti of Bologna, and Salvi of Naples. Being an indefatigable investigator and a shrewd reasoner, Romiti has to his credit more than 130 scientific works published in Italy and elsewhere, among which are a treatise on human anatomy, in four volumes, and a treatise on topographic anatomy, which have been and are still the basis of modern anatomy. He counts among his friends large numbers of foreign scientists. He has received some thirty-five honorary titles from all parts of the world—from Scotland to Spain, and from Venezuela to Japan and China. Professor Romiti counts the king of Italy among his personal friends. The ceremonies in his honor were attended by the whole medical faculty, numerous representatives of the other faculties of the university, the minister and the undersecretary of state for public instruction, and many Italian and foreign scientists. Not the least of Professor Romiti's services is his presentation to the University of Pisa of his anatomic library, the most valuable one of the kind in Italy.

Lata, or Jumping Disease, in Tripolitania

According to recent reports, lata occurs not only in central Africa, India, Siam and Malaysia but also in Tripolitania. Persons affected with this tropical disease continue to lead their ordinary life and present no signs of mental disequilibrium of nervous origin other than such as are characteristic of this form of disease. Subjects suffering from lata perform various involuntary actions and utter ejaculations in imitation of the actions and words of other persons. They become excited and react to slight stimuli which in a normal person would cause no reaction of importance. As for the etiology, there are some who regard this clinical form as the peculiar expression of a monosymptomatic hysteria and who ascribe it to a suspension or complete abolition of higher inhibitory powers. Patients seldom recover from the disease. While it affects mainly the natives, it sometimes develops among white persons living in the colonies. The disease has also medicolegal importance, for persons affected with lata have been known to commit crimes at the suggestion of another person.

Marriages

James Duffy Hancock, Jeffersonville, Ind., to Miss Marie Elizabeth Seelbach of Louisville, August 6.

Ethan Benjamin Pfefferkorn, Milwaukee, to Miss Harriett A. Dohr of Oshkosh, Wis., July 11.

John Douglas Simmons, Gunnison, Miss., to Miss Eunnye Elizabeth Bowe of Mineral Wells, May 16.

Findley Dayton John, Chicago, to Miss Josie Dulaney of Okolona, Miss., August 20.

Francis A. Fagone, Portland, Me., to Miss Jeanette Del Gandio of Boston, July 26.

Wilfred Clyde Adkerson to Miss Anna Bell Fox, both of Lynchburg, Va., May 9.

Maurice Albach to Miss Miriam Pearl Silverman, both of Chicago, August 16.

M. Boyd Kay to Miss Dorothy Virginia Reese, both of Detroit, July 25.

Deborah Doan to Mr. Earl L. Phillips, both of Trenton, Mo., August 9.

Deaths

John Edwin Rhodes ⊕ professor emeritus of laryngology and otology at Rush Medical College, died at his home in Chicago, September 2, aged 74, of angina pectoris and pernicious anemia. Dr. Rhodes graduated from the old University of Chicago in 1876, and for a time engaged in business in California. He then took up the study of medicine, graduating at Rush Medical College in 1886, and almost at once became connected with the faculty. He was for many years professor of otology and laryngology and college historian, collaborating with the late Dr. Norman Bridge in writing a history of Rush Medical College. He was formerly on the staffs of the Presbyterian, St. Mary's and Nazareth hospitals, and the Home for Destitute Crippled, and was a member of many special otolaryngologic societies.

Ralph H. Pomeroy ⊕ Brooklyn; Long Island College Hospital, Brooklyn, 1889; past president of the Kings County Medical Society; member of the American Gynecological Society, the Brooklyn Gynecological Society, and the New York Obstetrical Society; formerly associate professor of obstetrics and gynecology at his alma mater; on the staffs of the Kings County, St. John's and the Methodist Episcopal hospitals; aged 58; died, August 22, of pleurisy.

Charles Watson Bartlett, Marshfield, Mass.; Medical Department of Columbia College, 1889; member of the Massachusetts Medical Society; formerly member of the school board and chairman of the board of health; aged 60; died, August 9, following a long illness.

Nelson Gore Trueman, Salem, Mass.; Medical School of Harvard University, Boston, 1903; member of the New England Society of Psychiatry; formerly on the staff of the Danvers (Mass.) State Hospital; aged 46; was drowned, August 10.

Arthur Noel Savignac, Amesburg, Mass.; University of Montreal Medical Faculty, Montreal, Que., Canada, 1890; member of the Massachusetts Medical Society; aged 64; died, August 13, at the Massachusetts General Hospital, Boston.

John W. Fyfe, Saugatuck, Conn.; Eclectic Medical College of the City of New York, 1887; formerly president of the Connecticut Eclectic State Examining Board; aged 86; died, August 5, at the Norwalk (Conn.) Hospital, of arthritis.

Samuel Alman, Gilbertown, Ala.; Louisville (Ky.) Medical College, 1898; member of the Medical Association of the State of Alabama; aged 52; was found dead, August 20, of a bullet wound, presumably self-inflicted.

Millard Fillmore Fox, Guilford College, N. C.; College of Physicians and Surgeons, Baltimore, 1881; member of the Medical Society of the State of North Carolina; aged 72; died, August 15, at Norfolk, Va.

Herbert Pennell Moseley, Farmville, N. C.; University College of Medicine, Richmond, Va., 1912; member of the Medical

---

⊕ Indicates "Fellow" of the American Medical Association.

Society of the State of North Carolina; aged 37; was shot and killed, August 20.

Laurie Thomas W. Penney, New Germany, Nova Scotia, Canada; McGill University Faculty of Medicine, Montreal, Que., 1907; aged 44; died, June 19, at the Dawson Memorial Hospital, Bridgewater.

Abram Kissinger Wanner ⊕ Reading, Pa.; Jefferson Medical College of Philadelphia, 1898; formerly on the staff of the Reading Hospital, where he died, in August, of tumor of the brain, aged 55.

David Barnes Van Wyck, Arlington, N. Y.; Bellevue Hospital Medical College, New York, 1889; member of the Medical Society of the State of New York; aged 72; died, August 16, at Poughkeepsie.

David C. Brockman ⊕ Ottumwa, Iowa; State University of Iowa College of Medicine, Iowa City, 1878; member of the Western Surgical Association; aged 71; died, August 21, of angina pectoris.

Francis Marion Fowler ⊕ Elizabethtown, Ill.; Vanderbilt University Medical Department, Nashville, Tenn., 1896; aged 66; died, July 8, at a sanatorium in Memphis, Tenn., of angina pectoris.

J. Cash Waring, McClellanville, S. C.; Medical College of the State of South Carolina, 1894; member of the South Carolina Medical Association; died, in August, of cerebral hemorrhage.

Louis G. Rupp, Concord, Wis.; Wisconsin College of Physicians and Surgeons, Milwaukee, 1905; member of the State Medical Society of Wisconsin; aged 47; died, August 12, of erysipelas.

Henry Lane Snodgrass ⊕ Buffalo, Pa.; University of Michigan Medical School, Ann Arbor, 1876; aged 75; died, August 15, at the Washington (Pa.) Hospital, following an operation.

Samuel Russell Stofer, Los Angeles; University of Wooster Medical Department, Cleveland, 1876; formerly a practitioner in Missouri; aged 78; died, August 17, following a long illness.

David Crispin Holton ⊕ Miami, Fla.; Bellevue Hospital Medical College, New York, 1886; member of the Medical Society of the State of New York; aged 77; died, August 11.

Harvey Joseph McCloughan, Newton, N. J.; University of Pennsylvania School of Medicine, Philadelphia, 1898; died, August 13, of burns received when his bed caught fire.

Andrew Lafayette Gaston ⊕ Ensley, Ala.; University of Alabama School of Medicine, Tuscaloosa, 1910; aged 41; died, August 11, of acute dilatation of the heart.

Charles B. Simmons ⊕ Fort Worth, Texas; Medical Department of the Tulane University of Louisiana, New Orleans, 1893; aged 55; died, August 5, of gastric ulcer.

Claudius Henry Mastin, Jr., Mobile, Ala.; University of Pennsylvania School of Medicine, Philadelphia, 1884; aged 63; died, August 9, at Citronelle.

Levi Johnson Lennox, Detroit; Trinity Medical College, Toronto, Ont., Canada, 1881; aged 70; was killed, August 9, in an automobile accident.

William Edward Hastings, Zionsville, Ind.; Miami Medical College, Cincinnati, 1897; aged 54; died, August 25, of pernicious anemia.

William Thomas Harrison, Keene, Ont., Canada; Victoria University Medical Department, Toronto, 1869; aged 79; died suddenly, July 25.

James Campbell Beatty, Regina, Sask., Canada; University of Toronto Faculty of Medicine, Toronto, Ont., 1905; aged 42; died, July 25.

Wyatt Russell McClain, Pelham, Ga. (years of practice); Confederate veteran; aged 89; died, August 2, following a long illness.

David A. Hart, Montreal, Que., Canada; University of Bishop College Faculty of Medicine, Montreal, 1874; died, in June.

Noah Ray Myers ⊕ Wanamie, Pa.; University of Pittsburgh School of Medicine, 1892; aged 66; died, August 13, of asthma.

John T. Chowning, Livingston, Tenn.; University of Louisville (Ky.) School of Medicine, 1877; aged 70; died, August 10.

George Wallace Brown, Port Arthur, Ont., Canada; Trinity Medical College, Toronto, 1895; aged 58; died, May 29.

Frank Camden Willard, Baltimore; Baltimore Medical College, 1904; aged 45; died, August 9, of pneumonia.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

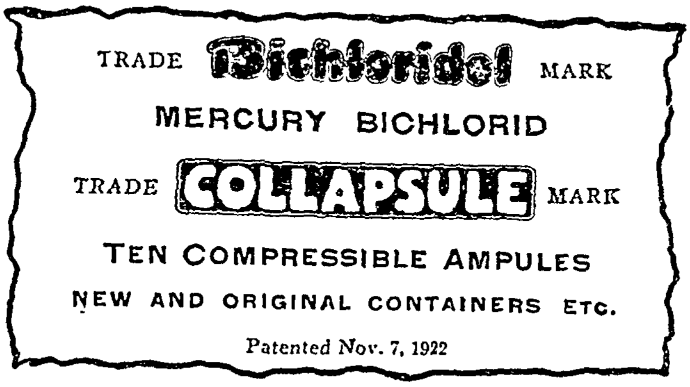
BICHLORIDOL AND SALICIDOL NOT ACCEPTABLE FOR N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following statement.

W. A. PUCKNER, Secretary.

"Bichloridol" and "Salicidol" are the proprietary, uninforming names applied to suspensions, respectively, of mercuric chlorid and mercuric salicylate intended for intramuscular administration. These preparations are manufactured by the Collapsule Company, Inc., New York, and marketed by the H. A. Metz Laboratories, Inc., New York.



TRADE Bichloridol MARK

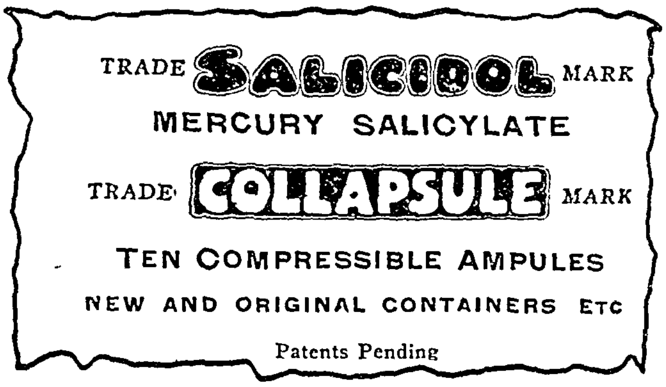
MERCURY BICHLORID

TRADE COLLAPSULE MARK

TEN COMPRESSIBLE AMPULES

NEW AND ORIGINAL CONTAINERS ETC.

Patented Nov. 7, 1922



TRADE Salicidol MARK

MERCURY SALICYLATE

TRADE COLLAPSULE MARK

TEN COMPRESSIBLE AMPULES

NEW AND ORIGINAL CONTAINERS ETC

Patents Pending

It is claimed that in these preparations the drugs are suspended in a "palmitin base." In answer to a request for a more definite statement as to the identity of the palmitin base, the firm replied:

> "The palmitin used as a vehicle for the mercury bichloride and mercury salicylate is a mixture of glycerides of fatty acids, purified by mechanical means and with a consistency adjusted to approach the various requirements conditioned upon the varying climatic changes in the entire country."

The H. A. Metz Laboratories, Inc., were informed that a more definite statement in regard to the identity of the vehicle should be furnished and that the names "Bichloridol" and "Salicidol" for these pharmaceutical preparations could not be recognized, but that names such as Collapsule Mercuric Chlorid and Collapsule Mercuric Salicylate would be acceptable. The H. A. Metz Laboratories, Inc., offered no further information in regard to the composition of the vehicle. The firm stated that it was proposed to simply list Salicidol "to fill a still existing demand." The firm stated that the Collapsule Company, Inc., had consented to give prominence on the labels and in the literature to the name suggested by the Council for Bichloridol, but proposed to continue the proprietary names "Bichloridol" and "Salicidol."

It is the experience of the Council that the adoption of descriptive synonyms does not remove the objection to the use of uninforming names applied to mixtures of established drugs. Therefore, the Council declared "Bichloridol" and "Salicidol" inadmissible to New and Nonofficial Remedies because they are marketed with indefinite statements of composition and under nondescriptive proprietary names.

Correspondence

ROSEOLA INFANTUM, THE ROSE RASH OF INFANTS

To the Editor:—In three successive papers read before different medical societies during the period 1909 to 1915 I described the incidence, symptomatology, course and termination of the peculiar exanthem to which I gave the name "roseola infantum." In the last few years many descriptions of the disease have appeared. I would express here my appreciation for the generous credit that has been accorded me in the work of separating this symptom-complex from the multitude of eruptions in infancy. Even Heiman, in reviewing the subject (*Arch. Pediat.*, July, 1925, p. 454) admits that nothing has been added to my original descriptions except that Levy and later Veeder and Hempleman described the characteristic leukopenia.

Objections have been made, however, to the nomenclature. Veeder and Hempleman objected to "roseola infantum," and proposed instead "exanthem subitum." Heiman calls the disease "the critical pre-eruptive fever." The term "roseola infantum" gives two characteristics of the disease: its efflorescence and its almost exclusive occurrence in infants. It is acceptable to mothers and grandmothers since the term roseola was used by older practitioners. It may be translated as *the* rose rash of infants. "Roseola" has been abandoned by dermatologists and can cause no confusion; its archaic qualities are lost when applied to a distinct clinical entity; it becomes a living appellation. It is no new performance in the history of medicine for a name applied to several diseases to be used to designate a definite clinical entity (e. g., rubeola, typhus).

The term "exanthem subitum" has many objections. As Kuhs and Garvin have so well stated, "this name will be a misnomer when the medical profession becomes familiar with the disease, and especially its early recognition, for then the exanthem will not be *subitum*, or "unexpected."

It should be remembered that two other diseases have critical, pre-eruptive fevers and the rash is so often sudden and unexpected; namely, variola (especially the mild Cuban variety) and dengue. "Exanthem subitum" does not offer an acceptable translation or abbreviation.

Roseola infantum is now recognized as a distinct clinical entity, a common disease in infants, more frequent than other well established exanthems.

John Zahorsky, M.D., St. Louis.

TISSUE ACIDOSIS

To the Editor:—Two recent editorials in The Journal concerning the reaction of the tissues, apropos of the interesting work of Peyton Rous, lead to the idea that extensive work has been done on the problem. If such work has been done, it has not been reported save in a few instances. In 1914, Michaelis (*Biochem. Ztschr.* **62**:180) experimented with expressed juices from organs (muscle) which had been (1) freshly excised, then mashed and the reaction determined; (2) excised and thrown into boiling water, and (3) excised and left to develop considerable acidity after death. The reactions obtained were, respectively p_H 6.7, 6.92 and 6.8, calculated from the hydrogen ion concentration as given by them. They concluded that the reaction of the tissues was much more acid than the blood.

Since 1915, I have studied the problem by different methods and made reports, briefly, in the *Journal of Biological Chemistry* and in the *Proceedings of the Society for Experimental Biology and Medicine* for these years. The conclusion reached was similar to that of Michaelis that, as far as the evidence goes, the tissues have an acidity greater than that of the blood. Morse and van der Heyde (*Proc. Soc. Exper. Biol. & Med.* **19**:27, 1921) followed the reaction of mammalian liver that had been frozen in situ after laparotomy, excised immediately, ground in an ice-cold mortar and electrometric p_H determination made of the mash. The first reading was obtained less than fifteen minutes after the death of the animal and about five minutes after the temperature of the material rose to 20 C. from 13 C., a temperature at which enzyme action is very slow. The reaction at 20 C. was p_H 4.5. After an hour the reaction fell to neutrality (p_H 7.0). Other reports were made in which the colorimetric method for p_H determination was used and the results agreed. Bradley and Koehler later repeated some of this work and extended it, but found less acidity (p_H 6.7 to 6.8) in the tissues examined. The work of Foster and Moyle in England, of Hopkins (Cambridge, England) and of others can be interpreted in similar ways. Finally, mention may be made of my attempt to determine the capacity of the tissue juice, expressed from fresh tissue chemically to bind carbon dioxid. The method was that of Van Slyke. The tissues examined were found to have a carbon dioxid combining power below that of normal blood. The interpretation of these findings is either: (1) that the true reaction of the tissues which were examined was acid, or (2) that the methods involved were inadequate to show the true reaction, owing to the almost explosive development of acid as Hopkins and others have shown.

Further than these reports, I know of no investigations that bear on the question.

Withrow Morse, Philadelphia.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

MEULENGRACHT, FOUCHET AND VAN DEN BERGH TESTS FOR JAUNDICE

To the Editor:—Will you please let me have the technic of the quantitative test of the Meulengracht, Fouchet and the van den Bergh tests for determining the presence of latent jaundice?

R. W. Stoneburner, M.D., Montgomery, W. Va.

Answer.—Meulengracht constructed a bilirubin colorimeter which resembles the hemoglobinometer of Sahli; one test tube contains a standard pale yellow fluid; the other is graduated and used for diluting the blood serum. To perform the test, 3 c.c. of blood from a vein is placed in a test tube in which there is two drops of a 3 per cent. sodium oxalate solution to prevent coagulation; the contents are mixed and let stand from twelve to twenty-four hours for the erythrocytes to settle out; or the centrifuge may be used if one is in haste. Then 0.5 c.c. of the supernatant serum is put into the graduated test tube of the colorimeter and diluted with physiologic sodium chlorid solution until the color matches that of the standard solution in the colorimeter. The height of the fluid in the graduated tube shows the amount of bilirubin present. If, as in icterus, it is higher than 15, the serum must be previously diluted and the figure multiplied by the degree of dilution.

The Fouchet test for hyperbilirubinemia is an oxidation test, in which equal parts of blood serum and reagent are

For instance, a hen is placed sitting on a table and its head pushed down with a sudden movement of the right hand, while the left hand restrains its wings. A common method is suddenly to turn the animal on its back while restricting its movements. In extreme cases, operations may be performed. Hypnotic methods are described for various birds, reptiles, amphibia, fishes, arthropods, including crustacea, and various insects. Apparatus is described for the experimental study of hypnotic conditions. By mechanical devices, factors that disturb the onset of hypnosis are avoided and in this way more accurate estimation can be made of the time used to hypnotize an animal. This is important, because the disposition toward hypnosis is measured in terms of speed of the onset and the duration of the state. The author also discusses the measurement of certain reflex times during hypnosis, noting a decrease in reflex irritability.

Colds: Cause, Treatment and Prevention. By Russell L. Cecil, M.D., Assistant Professor of Clinical Medicine in Cornell University Medical College. Cloth. Price, $1. Pp. 111, with 2 illustrations. New York: D. Appleton & Company, 1925.

The common "cold" is the most ubiquitous of human ailments. This little book seeks to furnish to the nonmedical reader an answer to such questions as "What is a cold? What causes colds? Are they catching? Are 'grip' and 'flu' anything more than severe colds afflicting large numbers of persons at the same time?" The brief description of the anatomy and physiology of the upper air passages is sufficient for the layman. Correction should be made in the next edition of the statement on page 9 that the eustachian tube connects with the "internal" ear. The division of colds into two groups, the noncontagious and the contagious, is in accord with the majority of opinion, and the conditions that predispose to or cause colds are well described. Asthma and hay-fever, grip and influenza, pneumonia and other complications are discussed. The advice given in the chapters on the treatment and the prevention of colds is, on the whole, sound and sensible. Exception must be taken, however, to some of the suggestions made. The application of protargin mild or any similar remedy is better made under a physician's direction. The advice that "if you feel feverish call in a family physician" is excellent, but the direction "if the cold hangs on after a week or ten days consult a nose and throat specialist" is not. One of the customs of our time which needs most to be discouraged is that of the self diagnosis by the layman of his own condition and his resort to the specialist whom he fancies he should consult. The judgment of those physicians whose opinion is most entitled to weight is adverse to the use of either autogenous or stock vaccines as preventive of colds. The evidence that they have any value, either as a prophylactic or as a cure of "colds," is inconclusive.

Physiologie und Pathologie des Säuglingsmagens. Von Dr. S. Rosenbaum, Assistenzarzt der Klinik. Abhandlungen aus der Kinderheilkunde und ihren Grenzgebieten. Heft 4. Paper. Price, 3 marks. Pp. 60. Berlin: S. Karger, 1925.

This is divided into two sections. The first is devoted to physiology, with subdivisions covering motility, secretion, digestion and absorption, and innervation; the second, to pathology, with detailed consideration of abnormal motility, secretion and bacterial flora. The subjects are treated in a concise manner, and the monograph can be recommended to those interested in the later researches dealing with digestion and metabolism in infancy.

A Companion to Manuals of Practical Anatomy. By E. B. Jamieson, M.D., Senior Demonstrator and Lecturer on Anatomy, University of Edinburgh. Second edition. Cloth. Price, $5. Pp. 558. New York: William Wood & Company, 1925.

This is a companion to Cunningham's Manual of Practical Anatomy. It is evidently intended to help students prepare for written examinations on regional anatomy, and for oral examinations conducted without the cadaver. There are no illustrations. The text is reduced to a minimum. Sentences are syncopated and incomplete. But it covers thoroughly the field treated in the manuals, and has in addition a condensed account of development. It will undoubtedly be useful to students preparing for the kind of examination that tests a student's ability to give a word picture of anatomic structures by regions. As a means of helping a student to acquire or review a knowledge of structures, it is decidedly inferior to any good atlas. As a means of getting an understanding of the functional anatomy of the system of structures, arterial, nervous, lymphatic, that make up the body, it is far inferior to the textbooks. The method of reviewing anatomy which it encourages is tedious and gives poor returns even in preparation for verbal examinations. Regional review by the study of regional word pictures is inferior to review by the study of atlases or texts.

The Practice of Pediatrics. By Charles Gilmore Kerley, Attending Physician to the New York Nursery and Child's Hospital, and Gaylord Willis Graves, Associate in Diseases of Children in the College of Physicians and Surgeons (Columbia University). Third edition. Cloth. Price, $9 net. Pp. 922, with 150 illustrations. Philadelphia: W. B. Saunders Company, 1924.

This edition is based largely, as were the previous editions, on the author's personal experiences. In many instances, case histories from his files are recorded, which adds to the practical value of the volume. For the artificially fed infant, Kerley expresses a preference for top milk mixtures. In his roentgen-ray studies of developmental abnormalities in the intestinal tract, he goes into greater detail than most works covering this field. Taken as a whole, this volume covers the diseases of infancy and childhood in a comprehensive and practical manner. Several especially practical chapters concern essentials in the care of acute illness and special diagnostic methods and therapeutic measures. The treatment of a number of conditions, such as celiac diseases, acrodynia and the care of premature infants, have apparently been slighted.

Chirurgie der Sportunfälle. *Ein Leitfaden für Studierende und Aerzte (Sportärzte).* Von Dr. Felix Mandl, Assistent der II. chirurg. Universitatsklinik in Wien. Paper. Price, 12 marks. Pp. 303, with 71 illustrations. Berlin: Urban & Schwarzenberg, 1925.

This is a small volume devoted to the injuries peculiar to outdoor sports, including football, hockey, tennis, wrestling and swimming. The presentation of such obscure traumatic lesions of the soft tissues as muscular and ligamentous tears is well worth while. Though nothing in the way of new material is presented, the author discusses diagnosis and mechanism in a more detailed way than one finds in the average textbook on surgery. The book is as interesting as it is unusual.

From Infancy to Childhood. The Child From Two to Six Years. By Richard M. Smith, M.D., Assistant Professor of Child Hygiene, Harvard University. Cloth. Price, $1.25. Pp. 105. Boston: The Atlantic Monthly Press, 1925.

This is a practical work covering rules for care and guidance by the parents of children through the transition period between the second and sixth years. The author believes this to be one of the most important periods of physical and mental growth. The first chapter, on "Doctor, Mother and Nurse," is followed by comprehensive chapters on the physical development of the child, care of the body, clothes, food, daily routine, training and education.

Landmarks and Surface Markings of the Human Body. By L. Bathe Rawling, M.B., B.C., F.R.C.S., Surgeon to St. Bartholomew's Hospital. Sixth edition. Cloth. Price, $3. Pp. 97, with 36 illustrations. New York: Paul B. Hoeber, Inc., 1925.

This is a handbook for surgeons and students of surgery. It is in the form of a practical course, indicating the surface markings on the living subject with which a surgeon must be familiar. Immediate practical usefulness has been the prime consideration in its compilation. It is brief, practical and serviceable. The twenty-eight full-page plates made especially for this book are clear and definite. Three appendixes tabulate the length of various passages, the weight of some organs, and the time of commencement of ossification and union of epiphyses of the bones of the extremities, according to Gray's Anatomy. The fact that it has come to a sixth edition is evidence that the object of producing a useful tabulation has been attained.

Medicolegal

Liability for Injury by Ambulance

(West v. Jaloff (Ore.), 232 Pac. R. 612)

The Supreme Court of Oregon, in affirming a judgment for $9,600 damages for an injury to the plaintiff arising from the alleged negligent driving of an ambulance owned by the defendant, says that there was sufficient in the complaint to sustain a verdict on the common-law allegations of negligence. Unless such a vehicle is exempted by the statute from such liability, there is no exemption. Granting the right of way to an ambulance is one thing, and granting the right to exceed the statutory speed is another. Whatever right of way the defendant's machine may have had by virtue of its being an ambulance had no relation to the speed at which it was traveling, if such speed was above the statutory limit for automobiles in general, and in respect to speed in this particular case there was abundant evidence to go to the jury that the speed was above the statutory limit. A number of cases were cited to the effect that drivers of emergency vehicles are not liable for injuries inflicted, on the ground that such emergency vehicles are acting in a governmental capacity; but none of those cases went beyond the rule that such vehicles, in order to be exempt from liability, must be in the actual service of the city, either by reason of the city's ownership of them or because the vehicle is being used under contract with the city; neither of which facts appeared in this case. The defendant was liable for ordinary negligence, if such negligence was the proximate cause of the injury. Nor was there any testimony here of any such emergency as would justify using the vehicle at a rate of speed greater than that prescribed for other automobiles. A physician testified that he sent the defendant's driver to bring "a case," as he expressed it, that is, a sick woman, to the hospital; but there was nothing in the testimony to indicate that there was any emergency that required any greater speed than an ordinary automobile would be expected to use under the same circumstances.

Prohibiting Use of Saccharin in Bottled Soft Drinks

(Longbrake v. State (Ohio), 146 N. E. R. 417)

The Supreme Court of Ohio, in affirming a judgment of conviction of defendant Longbrake of violating Section 1089—9 of the general code of that state, holds that this section, prohibiting the use of saccharin in bottled soft drinks, is constitutionally valid and within the inherent police powers of the state. The court says that it was true that in the instant case the state did not prove that the one-sixth grain contained in the 8-ounce bottle of pop sold by the defendant would be in way deleterious to health. However, that did not meet the possibility that other manufacturers of soft drinks might use a much larger quantity of saccharin in its manufacture, or use it as a substitute for sugar because of its intensive sweetening power. The court cannot inquire into the motive of the legislature in prohibiting, and not regulating, the use of this ingredient. Whether because its continuous and unrestricted use would menace the public health, or because of the difficulty of inspection, or for the reason that it might replace sugar because of its sweetening power, this court is unable to determine; but the fact remains that the legislature unqualifiedly provided in the act that saccharin could not be used either as a substitute for sugar or otherwise. It was contended by the defendant that the act is discriminatory in that it seeks to prevent the use of saccharin in bottled soft drinks only and that such prohibition is not confined to other soft drinks or food products in general daily use. But while the act was thus questioned as to its application to soft drinks other than bottled, it evidently covers all soft drinks in which saccharin is used. The department of agriculture has so construed it and issued its regulations accordingly, forbidding the use of saccharin in all food and drink products. This court has no means of knowing why the legislature confined this prohibition to soft drinks. Undoubtedly it could have adopted a reasonable regulation in respect thereto, or extended the field of inquiry so as to cover other food or drink products. However, this is no argument against the utilization of the police power in respect to bottled soft drinks. The constitutional validity of the act cannot be attacked because its scope was not extended to cover the entire field of possible abuses.

Quo Warranto Against Chiropractor—Burden of Proof

(Robinson v. State ex rel. James (Ala.), 102 So. R. 693)

The Supreme Court of Alabama, in affirming a judgment which excluded and prohibited defendant Robinson from practicing the profession of treating or offering to treat diseases of human beings, says that this was an action in the nature of quo warranto. This action may be brought in the name of the state against the person offending, when that person intrudes into any profession requiring a license or certificate or other legal authorization within the state of Alabama. The treatment of diseases of human beings in Alabama is a profession, calling for and requiring a certificate of qualification from the state board of medical examiners before a person can practice the profession. It appeared from the evidence that the defendant was a chiropractor, and that he offered his services as such to the public, and treated human beings by the system of chiropractic—was practicing that profession, but was he doing so unlawfully, as an intruder, without certificate of qualification, without license from the state medical examiners, as the petitioner alleged? There was no proof to sustain these averments. The proof of these facts is peculiarly within the knowledge of the defendant, and when the state proves acts done by the defendant which he is prohibited by statute from doing, unless he has authority by certificate or license to do the acts, then the burden of showing the authority by proper certificate or license is shifted to the defendant. In this case the state by proof showed that the defendant, since Aug. 18, 1924, was practicing a profession, treating, or offering to treat, diseases of human beings, in Dallas County. The statutes require that he should have, before doing so, procured a certificate of qualification from the state board of medical examiners of Alabama. After this proof was made, the burden then shifted on the defendant to show a lawful authority to practice this profession. This he failed to do; he offered no evidence; and the trial court properly entered a judgment of exclusion and prohibition against him.

Insufficient Evidence as to Who Left Gauze—Ruling as to Surgeon for Part of Operation

(De Rose et ux. v. Hirst (Pa.), 127 Atl. R. 776)

The Supreme Court of Pennsylvania, in affirming a judgment of nonsuit in this action brought by husband and wife, says that the plaintiffs' regularly employed physician engaged the defendant to perform an abdominal operation on Mrs. De Rose. The defendant did not perform the entire operation, but, after making the necessary incisions and opening the abscess which was the seat of trouble, left the operating room, with the wound open. The duty to clean it out and sew it up so far as sewing was required was on said other physician, who assisted in the operation. Called as a witness, the latter testified, without contradiction, that the gauze pads which were used were counted by the defendant before they were introduced into the plaintiff's body and that when the defendant completed his part of the operation they were removed and again counted by the defendant, and that the prior and subsequent computations agreed. He further said that following the operation it was necessary to place in the wound a piece of gauze several feet in length for drainage purposes, and that in sewing up the wound, after the defendant had left the operating room, having completed the surgery he was engaged to do, it was necessary to use pads for the purpose of sopping up blood. Some fifteen months afterward, another physician removed from the body of Mrs. De Rose a piece of gauze, which was brought to her in a jar filled with alcohol, and which was subsequently thrown away. This physician said that the substance removed was a very closely packed piece of gauze, so closely packed in the incision that to pull it out took force, but he could not recall the size of it, or whether it was the kind of pack used in the performance of operations by surgeons.

Under the circumstances here manifest it could not properly or reasonably be held that the plaintiff's designation of the substance as a "pad" was sufficient on which to place the defendant's liability. She asked that, from this statement, the inference be drawn that it was one of the pads used by the defendant when he operated on her. In view of the fact that the physician who extracted the gauze from her body, and the physician who completed the original operation (to whom she exhibited the gauze), could not identify it, and, in the light of the further facts that the latter physician in closing the incision after the defendant had departed also used pads of gauze to sop up the blood in her abdomen and that admittedly several feet of gauze were purposely and properly left in the wound after the operation for the purpose of drainage, no such compelling inference arose. The facts that a woman who was present when the substance was removed designated it as a "big long piece of packing," and another witness, who accompanied the plaintiff when she took the material in the jar to the physician to whom she exhibited it, spoke of it as a pad, were not sufficient to establish the conclusion necessary to the plaintiff's right to recover damages from the defendant.

The plaintiffs sought to bring this case within the rule of *Davis* v. *Kerr*, 239 Pa. 351, 86 Atl. 1007, and consequently to impose on the defendant the burden of rebutting the presumption of negligence arising from the fact that a foreign object was allowed to remain in the body of Mrs. De Rose without any plan for its removal. Manifestly, the rule of the cited case could not be applied here in view of the defendant's part in the operation. He did not, as did the defendant in that case, carry the operation through to completion; others, for whose actions he would not be responsible, were involved, and, so far as the evidence showed, it was just as probable that they committed the act on which this case was founded, as that he was guilty of it. Starting, as the court did, with the presumption against the defendant's negligence, and having only testimony which showed that the plaintiff's injuries were caused by an act either of the defendant or of some one else not connected with him (the defendant not having undertaken by contract or otherwise to see that the entire operation was performed with due care), the plaintiffs' case was not proved with that degree of certainty which the law requires to warrant submission to a jury.

Ill Health and Wounds as Grounds for Granting Bail

(Ex parte Robards (Okla.), 233 Pac. R. 247)

The Criminal Court of Appeals of Oklahoma in granting an application for the release of the petitioner on bail, when he was being held in jail for a new trial on a charge of robbery with firearms, holds that the granting or denying of bail on the ground of bad health and a gunshot wound, requiring surgical treatment in a hospital, is a matter within the sound discretion of the court. When it is clearly shown that a defendant confined to jail for a capital offense is suffering from gunshot wounds and other ailments likely to be aggravated by the continuance of such confinement, and that it will be several weeks before he can be tried, he will be admitted to bail. By numerous decisions of this court it is held that, when it is made clearly to appear by the testimony of competent physicians, who have examined the physical condition of the prisoner at the time application is made for his admittance to bail, that there is strong ground for the opinion that continued confinement would cause the disease from which the prisoner is then suffering to terminate fatally, he should be released on bail.

Anger, Passion, Irresistible Impulse, Moral Insanity

(Collins v. State (Fla.), 102 So. R. 880)

The Supreme Court of Florida, Division A, in affirming a judgment of conviction of defendant Collins of manslaughter, says that anger is a motive which sometimes impels one to murder another, but because it is overwhelming in its force and sweeps prudence and consideration aside it is none the less a motive, and is in no degree an excuse that will relieve the affected one from responsibility for criminal homicide. Such state cannot be said to be that of an insane person.

The law reduces the killing of a person in the heat of passion from murder to manslaughter out of a recognition of the fraility of human nature, of the temporary suspension or overthrow of the reason or judgment of the defendant by the sudden access of passion and because in such case there is an absence of malice. Such killing is not supposed to proceed from a bad or corrupt heart, but rather from the infirmity of passion to which even good men are subject. Passion is the state of mind when it is powerfully acted on and influenced by something external to itself. It is one of the emotions of the mind known as anger, rage, sudden resentment, or terror. But for passion to constitute a mitigation of the crime from murder to manslaghter, it must arise from legal provocation. Furthermore, the slayer cannot take time and deliberate on the wrong and then act on an impulse to avenge the wrong by taking the life of the wrongdoer. If reasonable time has elapsed for the passions to cool, or if, after merely learning of an outrage against his marital rights, the wronged individual immediately takes vengeance on the wrongdoer by pursuing and killing him, the offense is murder, not manslaughter.

The doctrine of "irresistible impulse" or "moral insanity" is not recognized in the state of Florida as an excuse for an unlawful act.

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Chicago, Oct. 20-24. Dr. Luther C. Peter, Chestnut and 20th Streets, Philadelphia, Secretary.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Hot Springs, Va., Sept. 16-18. Dr. James E. Davis, 111 Josephine Avenue, Detroit, Secretary.

American Association of Railway Surgeons, Chicago, Oct. 21-23. Dr. Louis J. Mitchell, 29 East Madison Street, Chicago, Secretary.

American College of Radiology and Physiotherapy, Chicago, Oct. 19-22. Dr. Roy W. Fouts, 121 South 33d Street, Omaha, Neb., Secretary.

American College of Surgeons, Philadelphia, Oct. 26-30. Dr. Franklin H. Martin, 40 East Erie Street, Chicago, Director-General.

American Electrotherapeutic Association, Chicago, Sept. 15-17. Dr. Richard Kovacs, 223 East 68th Street, New York, Secretary.

American Public Health Association, St. Louis, Oct. 19-22. Mr. Homer N. Calver, 370 Seventh Avenue, New York, Executive Secretary.

American Roentgen Ray Society, Washington, D. C., Sept. 22-25. Dr. Charles L. Martin, Baylor Hospital, Dallas, Texas, Secretary.

Association of Military Surgeons of the United States, New York, Oct. 8-10. Col. J. R. Kean, U. S. A. Ret., Army Medical Museum, Washington, D. C., Secretary.

Colorado State Medical Society, Colorado Springs, Sept. 29-Oct. 1. Dr. F. B. Stephenson, Metropolitan Building, Denver, Secretary.

Delaware State Medical Society, Wilmington, Oct. 13-14. Dr. W. O. La Motte, Industrial Trust Building, Wilmington, Secretary.

Indiana State Medical Association, Marion, Sept. 23-25. Mr. T. A. Hendricks, Hume Mansur Building, Indianapolis, Executive Secretary.

Interstate Postgraduate Assembly of America, St. Paul, Minn., Oct. 12-16. Dr. W. B. Peck, 82 Stephenson St., Freeport, Ill., Managing Director.

Kansas City Clinical Society, Kansas City, Mo., Oct. 5-9. Dr. James R. McVay, Rialto Building, Kansas City, Mo., Secretary.

Kentucky State Medical Association, Owensboro, Oct. 5-9. Dr. A. T. McCormack, 532 West Main Street, Louisville, Secretary.

Michigan State Medical Society, Muskegon, Sept. 8-10. Dr. F. C. Warnshuis, Powers Theatre Building, Grand Rapids, Secretary.

Mississippi Valley Conference on Tuberculosis, Lansing, Mich., Sept. 15-17. Dr. T. J. Werle, 209 W. Shiawassee Street, Lansing, Mich., Executive Secretary.

Missouri Valley, Medical Society of the, St. Joseph, Sept. 30-Oct. 2. Dr. Charles Wood Fassett, 115 East 31st Street, Kansas City, Mo., Secretary.

Nevada State Medical Association, Elko, Sept. 4-6. Dr. C. E. Piersall, 17 N. Virginia Street, Reno, Secretary.

Pennsylvania, Medical Society of the State of, Harrisburg, Oct. 5-8. Dr. Walter F. Donaldson, Jenkins Arcade, Pittsburgh, Secretary.

Utah State Medical Association, Salt Lake City, Sept. 7-12. Dr. William L. Rich, Boston Building, Salt Lake City, Secretary.

Vermont State Medical Society, St. Johnsbury, Oct. 15-16. Dr. William G. Ricker, 29 Main Street, St. Johnsbury, Secretary.

Virginia, Medical Society of, Richmond, Oct. 13-16. Miss Agnes V. Edwards, 104½ West Grace Street, Richmond, Secretary.

Washington State Medical Association, Seattle, Sept. 17-19. Dr. C. H. Thomson, Cobb Building, Seattle, Secretary.

Wisconsin, State Medical Society of, Milwaukee, Sept. 16-18. Mr. J. G. Crownhart, 558 Jefferson Street, Milwaukee, Executive Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to The Journal for a period of three days. No foreign journals are available prior to 1920, nor domestic prior to 1923. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested).

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

170: 1-156 (July) 1925

*Prevention of Simple Goiter. J. C. Hathaway, Minneapolis.—p. 1.
*Purpura Hemorrhagica (Thrombocytopenic Purpura) with Splenectomy. D. L. Farley, Philadelphia.—p. 10.
Wassermann-Fast Syphilitics Treated with Bismuth. L. K. McCafferty and J. A. MacGregor, New York.—p. 22.
*Wassermann Reaction in Blood and Spinal Fluid of Paretic Neurosyphilis. Wm. C. Menninger and K. A. Menninger, Topeka, Kan.—p. 27.
*Conditions Simulating Acute Lymphatic Leukemia (Infectious Mononucleosis. Tuberculosis). J. F. Landon, New York.—p. 37.
*Differentiation of Amebic Dysentery from So-Called Idiopathic Ulcerative Colitis. L. H. Mayers and E. F. Hirsch, Chicago.—p. 43.
*Duodenal Diverticulosis; Case Seen Roentgenologically. E. W. Lipschultz, Brooklyn.—p. 53.
*Three Cases of Tularemia, One Resembling Sporotrichosis. F. C. Hodges, Huntington, W. Va.—p. 57.
*Malignant Tumors of Thyroid: Seven Cases; Structure and Function of Metastases. D. Eisen, New York.—p. 61.
*Kottman Reaction in Thyroid Dysfunction. D. W. Kramer, Philadelphia.—p. 75.
Cerebrospinal Fluid in Infants and Young Children. S. McLean, New York., and F. H. von Hofe, South Orange, N. J.—p. 82.
*Early Bed Sores as Diagnostic Sign of Carbon Monoxid Poisoning. M. A. Rabinowitz, Brooklyn.—p. 98.
Primary Carcinoma of Lung. H. M. Moses, Brooklyn.—p. 102.
Blood Transfusion: Its Dangers and Limited Value. J. F. Baldwin, Columbus, Ohio.—p. 118.

Prevention of Simple Goiter.—In Hathaway's opinion, a method which would control the goiter situation should consist of the following: (1) Detailed surveys of all localities where goiter is suspected. (2) The institution of treatment with sodium iodid of the water supplies of all cities and towns which prove to be goitrous. (3) Small villages not having a common water supply, and rural communities, must have iodin supplied either by the use of iodized table salt or by iodin tablets of some kind.

Splenectomy for Purpura Hemorrhagica.—A splenectomy was done in Farley's case after preliminary blood transfusion. Following the splenectomy the patient ceased to bleed from the gums. Vaginal bleeding continued until the uterine cavity was packed. After operation, repeated transfusions of whole blood were given. The effect of raising the hemoglobin and red cell content of the blood was only temporary, though there was no gross evidence of red cell destruction such as jaundice. The patient died apparently of anemia and exhaustion despite repeated transfusions. After splenectomy, there was an enormous increase of nucleated red cells with a large number of leukocytes of myeloblastic origin.

Bismuth for Wassermann-Fast Syphilitics.—The Menningers believe that bismuth has a real and lasting place in treating Wassermann-fast syphilitics. In view of the fact that the Wassermann has remained negative for nearly a year or more in a large percentage of their patients, they believe that the permanency of this reduction cannot be denied.

Diagnosis of Acute Lymphatic Leukemia.—Landon holds that a high absolute and relative mononuclear count, persistent fever and enlarged lymph nodes are not enough evidence to establish the diagnosis of acute lymphatic leukemia. This diagnosis must wait on the progressive development of symptoms and until repeated blood examinations have demonstrated thoroughly typical blood changes.

Amebic Dysentery and Ulcerative Colitis.—Mayers and Hirsch insist that the possibility of amebic infection in patients with a chronic ulcerative colitis should be considered, and there should be a search for amebas before a diagnosis of idiopathic ulcerative colitis is made. The usual medication, including large doses of kaolin, bismuth and other astringents, is not indicated when the infection is definitely amebic. Because of the extensive ulceration and friability of the bowel wall in amebic dysentery, the proctoscope should be used with extreme caution.

Duodenal Diverticulum.—A case of duodenal diverticulosis, showing two diverticula in the second and third portions of the duodenum, respectively, with roentgenographic findings, is reported by Lipschultz. Various theories as to the etiology of this anomaly are quoted.

Tularemia.—Three cases proven to be tularemia are reported by Hodges, all of which were contracted from handling infected rabbits. One case resembled sporotrichosis, and had a complicating tularemic conjunctivitis. The others ran a course similar to the average described case. No treatment of proven merit was employed.

Malignant Tumor of Thyroid.—Seven cases of malignant tumor of the thyroid are analyzed by Eisen, one sarcoma and six carcinomas. Of these, one patient shows healing of a spontaneous fracture from a metastasis from a sarcoma of the thyroid and is alive and about his work three and a half years after the clinical onset of the disease. Another, after a lobectomy performed one year after the clinical onset of the disease is apparently well with no sign of recurrence two years after the operation. One patient showed an unusually wide distribution of the metastases and developed a paraplegia. At necropsy this was found to be due to a metastasis lodged in the vertebral column as an extension process from a metastasis in the rib. This had caused definite vertebral distruction and cord compression, but did not show up in the roentgenogram during life. In this case, there was no evidence clinically or pathologically of any lymphatic dissemination. Hematogenous dissemination was illustrated by actual demonstration of cancer cells in smaller blood vessels of the primary tumor and by the presence of metastases in the endocardium. The latter is a rare finding. No similar case has been found in the literature. This metastasis in the different organs showed a different histologic structure with reference to the presence or the degree of alveolar differentiation. No evidence of function, as determined by the power to fix iodin, could be found either in the primary tumor or in the metastases.

Kottman Reaction in Thyroid Dysfunction.—Kramer regards the Kottman method of measuring the degree of thyroid secretion as of value. The test is consistent and checks up with the basal metabolism results.

Bed Sores Sign of Carbon Monoxid Poisoning.—The very early appearance of bed sores in a previously comatous or still stuporous individual, in Rabinowitz' opinion, is almost pathognomonic of carbon monoxid poisoning, and is not found as early in other conditions. This sign is therefore of great value from a clinical and medicolegal viewpoint.

American Journal of Obstetrics and Gynecology, St. Louis

10: 1-152 (July) 1925

*Function of Hofbauer Cells of Chorionic Villus Particularly in Relation to Acute Infection and Syphilis. J. Hofbauer, Baltimore.—p. 1.
Sympus Dipus; Case. C. E. Proshek, Minneapolis.—p. 15.
Kielland Obstetric Forceps. J. Jarcho, New York.—p. 35.
*Hemorrhage in Last Trimester of Pregnancy. H. C. Burgess, Montreal.—p. 49.
*Use of Mercurochrome in Obstetrics. H. W. Mayes, Brooklyn.—p. 61.
Four Years' Experience with Radium in Treatment of Gynecologic Conditions. J. J. Mundell, Washington, D. C.—p. 70.
*Significance of Passage of Meconium During Labor. M. Schulze, San Francisco.—p. 83.
*Fetal Heart Sounds During Labor. R. A. Bartholomew, Atlanta, Ga.—p. 89.
Danger of Cervical Erosion. P. J. Reel, Columbus, Ohio.—p. 94.
Some Debatable Features of Curettage of Uterus. G. Gellhorn, St. Louis.—p. 101.
Prolonged and Shortened Gestation Periods from Medical and Medicolegal Standpoints. L. E. McCaffrey, Ann Arbor, Mich.—p. 107.
*Bandl's Ring as Cause of Dystocia; Four Cases. W. A. Michael, Peoria, Ill.—p. 111.
Series of Deaths in Gynecologic Patients. R. A. Hurd, New York.—p. 120.

Function of Hofbauer Cells in Syphilis.—Hofbauer believes that the conclusion is justified that the well known cellular changes within the core of the syphilitic villi represent a response of its specific elements to spirochetes, and that histiocytes after being transformed into polyblasts and epitheloid cells constitute the essential constituents of the new tissue, while the fibroblasts remain less numerous. In other words, the placental changes may be regarded as a cellular defense mechanism. His observation that an increase in the size of the histiocytes constitutes one of the first reactions of placental tissue to infection is in accord with the view that surface energy plays an important rôle in phagocytosis. His investigations have demonstrated a definite relation between infection and macrophage response within chorionic villi, in which the clasmatocyte plays a most important part; and as Gay and Morrison indicate, successful resistance to bacteria is constantly associated with a high clasmatocyte count. There is suggestive evidence that they may represent the bacterial macrophages *par excellence,* and that both active and passive [illegible]cal immunity may depend on their mobilization. In syphi[illegible]tic infection Hofbauer's observations have led him to conclude that the structural modifications in the villi represent the response of the reticulum cells to spirochetes, and from this it is not a long step to suggest that the placental tissue thereby acquires a certain degree of local resistance. The acquisition of ,such an increased resistance to spirochetes would account for the fact that most of the investigators, have failed to detect spirochetes within the placenta; whereas they are present in the fetal organs to an extent never approached in the adult. Hofbauer's studies have also revealed the interesting fact that frequently, even at term, the presence of reticulum cells in the apparently normal placenta may indicate that syphilis had previously existed, but had been cured. Such observations are in keeping with the observation of Maximow that polyblasts return to their resting condition after the inflammatory process has subsided. Furthermore, careful examination of the mature placenta in certain cases of acute tuberculous infection shows the presence of many reticulum cells. On the other hand, the routine study of 400 consecutive normal placentae at term showed that reticulum cells were present in only 8 per cent. of the number; and on carefully going over the histories of many of the respective patients, the existence of chronic inflammatory processes in the tonsils, the sinuses, or the mastoid could be elicited.

Cause of Postpartum Hemorrhage.—Among sixty cases of postpartum hemorrhage reviewed by Burgess twenty-one cases were due to a partial separation of the placenta, thirty-eight to atony of the uterus and one to laceration of the birth canal. The cases occurred in thirty-eight primiparas and one multipara, with the loss of one mother. The manual removal of the placenta for other purposes than bleeding was necessary in twenty-four cases, and with no maternal deaths.

Use of Mercurochrome in Obstetrics.—A 4 per cent. solution of mercurochrome Mayes has found to be a valuable, nonirritating solution for sterilizing the birth canal before delivery. A preliminary study of its use over a period of eight months shows fewer days of morbidity than when iodin is used. Mercurochrome is particularly adapted for induction of labor and for all operative deliveries.

Significance of Passage of Meconium During Labor.—Schulze concludes from the study of 5,534 deliveries that the passage of meconium by the child during labor is in the large majority of cases entirely independent of fetal asphyxia. The passage of old meconium at the time of rupture of the membranes is of no prognostic value as to the later development of asphyxia. The cause of the passage of meconium in cases without asphyxia cannot definitely be stated, but is apparently independent of the maternal condition, or of drugs administered to the mother. A strikingly high proportion of overlarge children pass meconium, in most cases without serious significance. Fresh meconium, appearing with rupture of the membranes or later in labor, may or may not be associated with asphyxia. In cases associated with asphyxia, changes in the fetal heart are invariably present, and the latter should, therefore, be the sole guide as to the necessity for operative interference. Meconium appearing after other signs of fetal distress is frequently a sign of the onset of very deep asphyxia and the child may perish even though delivery be accomplished very rapidly.

Fetal Heart Sounds During Labor.—Analysis made by Bartholomew of 200 consecutive obstetric cases on the basis of the fetal heart rate during labor, showed that as the heart rate was found to be slowed from a normal rate of 120 or above, to 100, or further slowed to a rate persisting below 100, there was an increasing proportion of babies showing partial asphyxia at birth and an increasing incidence of intranatal and postnatal deaths from asphyxia. The use of forceps to deliver babies showing evidence of impending asphyxia did not increase the incidence of partial asphyxia at birth or cause fetal mortality after birth, probably from the fact that in the majority of these cases the head was already on the perineum or partly crowned and could be delivered with comparative ease.

Bandl's Ring as Cause of Dystocia.—White's conception of Bandl's contraction ring is wrong, in Michael's opinion. Adoption of the terms, "persistent retraction ring of Bandl" and "tonic contraction ring of Bandl," is suggested; the former applying to cases in which in addition to the ring, general uterine retraction is present; while in the latter, Bandl's ring alone exhibits contraction. The view of Dickinson that the two conditions may represent separate stages of the same process is not improbable.

American Journal of Ophthalmology, Chicago

8: 601-680 (Aug.) 1925

Anatomy of Inversion and Recession of Iris. A. Fuchs, Vienna, Austria.—p. 601.
Antipneumococcic Properties of Ethylhydrocuprein Hydrochlorid (Optochin) in Vivo, Kansas City, Mo.—p. 609.
Orbital Abscess in Infant; Evacuation Through Fistulous Orifice in Bulbar Conjunctive. W. C. Posey, Philadelphia.—p. 612.
Ocular Manifestations in Serum Sickness. A. L. Brown, Cincinnati.—p. 614.
Treatment of Phlyctenular Inflammations of Eye. S. Funaishi, Mukden, Manchuria.—p. 618.
Blind Spot for Achromatic and Chromatic Stimuli. C. E. Ferree, G. Rrand and H. A. Wentworth, Bryn Mawr, Pa.—p. 620.
Ocular Complications of Chorea. H. M. Langdon, Philadelphia.—p. 626.
Siderosis Bulbi. S. B. Muncaster, Washington, D. C.—p. 630.
Unilateral Nystagmus. L. Post, St. Louis.—p. 632.
Crampton Accommodation Rod. F. H. Adler, Philadelphia.—p. 634.
Injuries to Crystalline Lens. W. A. Huber, Tulsa, Okla.—p. 635.
Primary Unilateral Diphtheritic Conjunctivitis. H. D. Fallows, Mason City, Iowa.
Case of Neuro-Epithelioma. J. J. Horton, Eagle Pass, Texas.—p. 637.
First Book Printed on Diseases of Eye. B. Chance, Philadelphia.—p. 638.

American Journal of Physiology, Baltimore

43: 275-504 (July 1) 1925

*Relation of Tryptophan to Thyroid Activity in White Rat. Hsi-Chun Chang, Chicago.—p. 275.
*Tryptophan and Thyroid Function. A. R. Abel, R. W. Backus, H. Bourquin and R. W. Gerard, Vermilion, S. D.—p. 287.
Effect of Temperature on Tonus of Skeletal Muscle. F. E. Emery, Urbana, Ill.—p. 296.
Physiology of Gastric Secretion. VII. Elimination of Dyes by Gastric Muscosa. A. B. Dawson and A. C. Ivy, Chicago.—p. 304.
Heat Regulation and Water Exchange. VII. Evidence That Cold Anhydremia is Due to Loss of Fluid from Blood Stream. H. G. Barbour and W. F. Hamilton, Louisville.—p. 315.
Id. VIII. Fate of Fluid Leaving Blood in Cold Anhydremia. W. E. Hamilton and H. G. Barbour, Louisville.—p. 321.
Influence of Relaxation on Knee Jerk. E. Jacobson and A. J. Carlson, Chicago.—p. 324.
Visceromotor Reflexes. IV. F. R. Miller and R. A. Waud, London, Can.—p. 329.
*Fat Soluble Vitamins. XXV. Antirachitic Action of Irradiated Animals on Nonirradiated When Placed in Same Cage. E. M. Nelson and H. Steenbock, Madison, Wis.—p. 341.
Muscular Reactions of Mammalian Ventricles to Artificial Surface Stimuli. C. J. Wiggers, Cleveland.—p. 346.
Utilization of Minerals by Ewes During Period of Gestation. A. R. Winter, Wooster, Ohio.—p. 379.
*Carbohydrate Studies. I. Relative Sweetness of Pure Sugars. A. Biester, M. Weigley Wood and C. S. Wahlin, Minneapolis.—p. 387.
Id. II. Relative Sweetness of Invert Sugar. J. J. Willaman, C. S. Wahlin and A. Biester, Minneapolis.—p. 397
Nature of Surface of Red Blood Cell and Mechanisms of Suspension of Stability. J. Oliver and L. Barnard, San Francisco.—p. 401.
*Rate of Action of Insulin in Artificially Cooled Mammals. G. J. Cassidy, S. Dworkin and W. H. Finney, Montreal.—p. 413.
*Some Physiologic Effects of Hot Air Baths. C. G. Benedict, F. G. Benedict and E. F. Du Bois, New York.—p. 429.
*Basal Metabolism of Some Orientals. G. MacLeod, E. E. Crofts and F. G. Benedict, New York.—p. 449.
Relation Between Secretory and Motor Activity in Fasting Stomach (Man). F. Hoelzel, Chicago.—p. 463.

*Action of Insulin on Blood; Cause of Hypoglycemia. L. Foshay, Cleveland.—p. 470.
Reciprocal Innervation as a Possible Local Mechanism in Frog. J. B. Stein and J. Hulgan, New York.—p. 480.
Analysis of Daily Activity of Albino Rat. J. R. Slenaker, Standford University, Calif.—p. 485.

Relation of Tryptophan to Thyroid Activity.—Cramer's results are partially confirmed by Chang. He cannot accept his interpretation, however, that lack of tryptophan in the diet may directly affect the thyroid by lack of material for production of the thyroid hormone. He is more inclined to believe that the body weight of the animal, i. e., the general nutritional condition, is the important factor responsible for the thyroid changes, since these appear in parallel states of malnutrition not due to lack of tryptophan.

Tryptophan and Thyroid Activity.—The facts presented by Abel and his associates are said to indicate that: tryptophan is essential to the normal functioning of the thyroid; a large amount of the needed tryptophan is available for the thyroid from the tissues of the body; the thyroid is able to take up tryptophan from the blood in quantities approximating its needs, even when the total amount is so small that other tissues suffer from its lack; sufficient thyroxin from an outside source induces atrophy of the thyroid. Lack of tryptophan results also in extrathyroid disturbances leading to emaciation and death.

Antirachitic Action of Irradiated Animals.—No evidence was obtained by Nelson and Steenbock that irradiated rats give off radiations capable of exerting an antirachitic effect on their neighbors. Additional evidence was obtained that the antirachitic action of irradiated animals placed in the same cage with nonirradiated is effected through the medium of traces of excreta consumed. It follows that an animal irradiated with ultraviolet light has constituents in its body affected in such a manner that they become antirachitically active.

Relative Sweetness of Sugars.—A method of comparing the sweetness of sugars has been developed by Biester, Wood and Wahlin which does not involve remembering a sweet sensation from one test to the next. By this method the minimum concentration of each sugar which is declared sweet by at least twenty experimental subjects has been established. Using the value of 100 for sucrose, the relative sweetness of lactose, raffinose, galactose, rhamnose, maltose, xylose, dextrose, sucrose and levulose has been determined. Theoretically, the monasaccharides obtained from the complete hydrolysis of raffinose, maltose, lactose and sucrose would have a greater sweetening power than a corresponding amount of unhydrolyzed carbohydrate.

Low Body Temperature Inhibits Insulin Convulsions.—Cassidy, Dworkin and Finney assert that lowering of the body temperature of cats and dogs to 25 C. inhibits insulin convulsions. Lowering of the blood sugar by means of insulin abolishes the shivering reflex. Administration of glucose causes its reappearance. The combined action of cold and insulin in cats and dogs produces a state simulating hibernation. Subsequent injection of glucose restores the animal to normal.

Physiologic Effects of Hot Air Baths.—The results of hot air experiments made by the Benedicts and Du Bois lead to the suggestion that a study of the metabolism and heart regulation of people living in the tropics would be of unusual physiologic significance.

Basal Metabolism of Orientals.—The standards for basal metabolism have already, by common consent, been modified for the effects of sex and age. It is now suggested by MacLeod, Crofts and Benedict that the correction for difference in sex be increased and that a racial effect in the direction of a lower metabolism be recognized with the Chinese and Japanese.

Action of Insulin on Blood.—Foshay says that the train of symptoms and signs that follow administration of large doses of insulin, and at least the early subjective and objective phenomena of insulin overdosage, are not associated with a hypoglycemia per se, but rather with a cytoglycopenia—a status of glucose impoverishment within the cell. This is of importance in the treatment of diabetes, especially when large doses of insulin are used. For, as Foshay shows, the whole blood sugar determination, which is commonly used as the therapeutic guide, is not a reliable index of an approaching insulin overdosage. This is particularly true of a patient in coma, when the symptoms are absent and the signs are obscured, for then another large dose of insulin, given because the last whole blood sugar was still quite high, may lead to a fatal issue. Corpuscular sugar determinations are a reliable index of the physiologic activity of insulin. They give evidence of degrees of action which are not obtained from whole blood sugar measurements.

Archives of Surgery, Chicago

2: 171-328 (Aug.) 1925

*Variations in Blood Sugar in Relation to Operation on Thyroid. C. C. Lund and E. P. Richardson, Boston.—p. 171.
*Injection of Absolute Alcohol into Thyroid. H. B. Barker, Ann Arbor, Mich.—p. 180.
*Dyspnea Following Thyroid Operations. R. Colp and H. W. Louria, New York.—p. 200.
*Osteoplastic Skeletal Metastases from Carcinoma of Breast. S. Ginsburg, New York.—p. 219.
*Abnormal Arteriovenous Communications, Acquired and Congenital. IV. Treatment. M. R. Reid, Cincinnati.—p. 236.
*Secretion Antecedents and Mitochondria in Pathologic Thyroids. Theory of Mode of Secretion in Thyroid. J. A. Key, St. Louis.—p. 254.
Review of Urologic Surgery. A. J. Scholl, Los Angeles, E. S. Judd, Rechester, Minn., L. D. Keyser, Roanoke, Va., G. S. Foulds, Toronto, and J. Verbrugge, Antwerp, Belgium.—p. 304.

Blood Sugar After Operations on Thyroid.—The blood sugar curve before and after operations on the thyroid was determined by Lund and Richardson in twenty-nine cases. There is a rise in blood sugar after operation on hyperthyroid patients similar in every way to that occurring in other patients. No case of hypoglycemia occurred in this series. No emotional hyperglycemia occurred before operation. Conditions following operation for exophthalmic goiter may cause increased demand for glucose. Treatment should be directed to maintain the supply of glucose, bearing in mind the occurrence of hypoglycemia in the postoperative reaction reported by Holman.

Alcohol Injections into Thyroid.—Barker injected from 0.5 to 10 c.c. of absolute alcohol into the thyroid of eighteen dogs, and the injected glands were removed at intervals varying from fifteen minutes to two months after the injection. Gross and microscopic observations are recorded. The microscopic picture after absolute alcohol injection is similar to that produced by boiling water. Alcohol injections can be made without the inconveniences and difficulties that are unavoidable with boiling water injections. Barker concludes that the injection of absolute alcohol, in suitable quantity, in cases of thyroid disease, in which the use of boiling water has been suggested and used, is a safe and legitimate method and it is recommended as an operative procedure in thyroid surgery.

Dyspnea Following Thyroid Operations.—From an experimental basis, Colp and Louria assert that fatal dyspnea following thyroidectomy does not seem to be due directly to nerve injury, tracheal stenosis or both factors combined. It is more likely due to a combination of circumstances from which the possibility of cardio-respiratory collapse cannot be excluded.

Osteoplastic Skeletal Metastases from Breast Cancer.—Ginsburg reports a case of skeletal carcinosis from a breast carcinoma that had been removed eighteen years before. The principal involvement was present in the skull. The condition had been diagnosed as syphilitic gumma but failed to yield to antisyphilitic treatment. Finally, when the carcinomatous nature of the lesion was determined, high voltage roentgen-ray therapy was given and under this treatment the patient improved considerably. The lumbosacral region, the shoulder (glenoid cavity) and the fifth and sixth cervical vertebrae were also affected.

Treatment of Abnormal Arteriovenous Communications.—Reid says that, in general, extirpation of the involved vessels yield the best results in the treatment of abnormal arteriovenous communications—arteriovenous aneurysms, cirsoid aneurysms and angiomas. He prefers this procedure to all others when an arteriovenous aneurysm has been present for any length of time; whereas, in very early cases restoration of both vessels, or of the artery when possible, may be desirable. In case of pulsating exophthalmos, the external carotid artery should be ligated and the common carotid occluded by a band. The jugular vein should also probably be ligated, though this has not generally been done. In all operations on large arteries an effort should be made to establish a normal vascular equilibrium in the part supplied by those vessels. This probably means that, when a large artery is tied, the accompanying vein should also be ligated.

Secretion Antecedents in Pathologic Thyroids.—Chromophil ranules and chromophobe vacuoles have been demonstrated y Key in the cells of normal and pathologic thyroids. He elieves that these are the secretion antecedents that were demonstrable in either toxic adenomas or exophthalmic goiters. All hyperactive glands examined contained an excess of the normal chromophobe secretion. The mitochondria were present in the living cells of all glands studied, and were increased in the cells of all hyperactive glands. The secretory antecedents do not arise directly from the mitochondria. It is suggested that mitochondria probably have some function in connection with the general metabolism of protoplasm, and are not responsible for the specific activities of the cells that contain them.

Boston Medical and Surgical Journal

193: 191-240 (July 30) 1925

*Splenectomy in Thrombopenic Purpura Hemorrhagica. B. Vincent, Boston.—p. 191.
Development of Medical Diagnosis. J. H. Pratt, Boston.—p. 200.
Vaccination Against Smallpox. B. White, Boston.—p. 210.
*Skin Test for Immunity to Smallpox. S. B. Hooker, Boston.—p. 212.
Bronchial Peanuts and Their Problems. L. Richards, Boston.—p. 215.
Health Promotion Through Nutrition Work. H. A. Rosenbaum.—p. 218.
Cape Cod Health District. A. P. Goff.—p. 220.
Vulvovaginal Inflammation Due to Mercury Poisoning. H. J. Cronin, Cambridge, Mass.—p. 221.
*Unusual Case of Heat Prostration. F. S. Hopkins, Springfield, Mass. —p. 221.

Splenectomy in Purpura Hemorrhagica.—The end results in the five cases that have been followed by Vincent for a five year period show that the beneficial effect of splenectomy in purpura hemorrhagica is not a temporary one. None of these cases had relapsed at the end of this period. The relief from abnormal external hemorrhage is complete in every case. When last observed, from four and one half to seven years after operation, all five patients were reported to be physically fit and symptomatically well.

Skin Test for Smallpox Immunity.—The three types of response to vaccination are described by Hooker: (1) Vaccinia, which indicates the absence of immunity; (2) vaccinoid, which signifies partial immunity, and (3) reaction of immunity. Attention is drawn to the great importance of this third type. Public cooperation and education are indispensable; smallpox immunization must be shown to be desirable —not something to be avoided; the profession should not ask for consent, it should receive requests. In working to achieve these desiderata it is urged to speak not of vaccination and revaccination but of the test for immunity.

Heat Prostration with Hyperpyrexia.—In Hopkins' case the patient's rectal temperature was 110.2 F. He was packed in ice and continuous colonic irrigations with ice water were given. Within thirty minutes the recal temperature was 93 F. Rises of temperature to 105.6 F. occurred each time this treatment was stopped. The man recovered. Three other similar cases in which the temperature reached 103, 106.6 and 109 F., respectively, are mentioned.

Journal of Biological Chemistry, Baltimore

64: 509-821 (July) 1925

Solubility Product of Secondary and Tertiary Calcium Phosphate Under Various Conditions. L. E. Holt, Jr., V. K. La Mer and H. B. Chown, New York.—p. 509.
Id. II. Delayed Equilibrium Between Calcium Phosphates and Its Biologic Significance. L. E. Holt, Jr., V. K. La Mer and H. B. Chown, New York.—p. 567.
Studies in Calcification. III. Quantitative Study of Equilibria Concerned with Calcification of Bone. L. E. Holt, Jr., Baltimore.—p. 579.
Jendrassik Reaction for Water-Soluble B Vitamin. N. Bezssonoff, Colombes, France.—p. 589.
Jendrassik Reaction for Vitamin B, with Reference to Work of Bezssonoff and Levine. V. E. Levine, Omaha.—p. 591.
Probable Dimensions of Moleclule and Molecular Weight of Crystalline Egg Albumin. P. L. du Noüy, New York.—p. 595.
Chemical Constituents of Camel's Urine. B. E. Read, Peking, China.—p. 615.
Oxidation of Isobarbituric Acid. New Class of Indigoïds. D. Davidson and O. Baudisch, New York.—p. 619.
*Reducing Substances of Blood. A. Hiller, G. C. Linder and D. D. Van Slyke, New York.—p. 625.
*Hyperglycemia Produced by Glycerol. C. Voegtlin, J. W. Thompson and E. R. Dunn, Washington.—p. 639.
Fermentation Products of Certain Mannitol-Forming Bacteria. H. R. Stiles, W. H. Peterson and E. B. Fred, Madison, Wis.—p. 643.
Proteins of Bark of Common Locust Tree, Robinia Pseudacacia. I. Enzymes Associated with Proteins. D. B. Jones, C. E. F. Gersdorff and O. Moeller, Washington, D. C.—p. 655.
Proteins of Cottonseed. D. B. Jones and F. A. Csonka, Washington, D. C.—p. 673.
Bone Growth. II. Changes in Calcium, Magnesium and Phosphorus of Bone During Growth. F. S. Hammett, Philadelphia.—p. 685.
Id. III. Changes in Composition of Ash During Growth. F. S. Hammett, Philadelphia.—p. 693.
Animal Calorimetry; Fat Production. M. Wierzuchowski and S. M. Ling, New York.—p. 697.
*Relation of Thyroid Secretion to Specific Dynamic Action. E. J. Baumann and L. Hunt, New York.—p. 709.
Use of Quinhydrone Electrode of Hydrion Concentration Determination on Serum. G. E. Cullen and E. Biilmann, Copenhagen, Denmark. —p. 720.
Effect of *p*H on Oxygen Consumption of Tissues. A. E. Koehler and R. J. Reitzel, Boston.—p. 739.
Aging of Ferrous Hydroxid and Ferrous Carbonate. O. Baudisch and L. A. Welo, New York.—p. 755.
Aging of Natural Mineral Waters. O. Baudisch and L. A. Welo, New York.—p. 771.
*Phosphatid and Total Phosphorus Content of Woman's and Cow's Milk. A. F. Hess and F. D. Helman, New York.—p. 781.
Fatty Acids in Subcutaneous Fat of Man. H. C. Eckstein, Ann Arbor, Mich.—p. 797.

Reducing Substances of Blood.—The behavior of the reducing substances in the blood has been studied by Hiller, Linder and Van Slyke by subjecting the latter to yeast fermentation and to incubation at 38 C. under conditions that lead to complete destruction of glucose. Such treatment leaves in normal blood a residue of reducing substance, other than glucose, which shows a reducing power for ferricyanide (Hagedorn-Jensen method) and for copper (Folin-Wu method) equivalent to 0.01 to 0.03 per cent. of glucose. By inducing insulin shock the authors succeeded in two out of six rabbits in reducing the fermentable sugar to zero, without affecting the nonfermentable reducing substance. Abnormally high total reducing power was observed in the blood of four out of five cases of glomerulonephritis with high nitrogen retention. The substance causing the increased reducing power showed, when the blood was fermented or incubated, a behavior identical with that of glucose.

Hyperglycemia Produced by Glycerol.—Glycerol given to fasted rabbits produced a hyperglycemia of considerable extent and duration, indicating a conversion of glycerol into glucose.

Relation of Thyroid Secretion to Dynamic Action.—Baumann and Hunt state that complete thyroidectomy caused a gradual decrease and final disappearance of specific dynamic action after about sixty-five days. Restoration of specific dynamic action which had entirely disappeared following thyroid removal was accomplished by feeding thyroid gland. Incomplete thyroidectomy caused a decrease of specific dynamic action, which would be increased again by feeding thyroid and in some cases by feeding a small amount of potassium iodid.

Phosphatid of Woman's and of Cow's Milk.—A large number of samples of both woman's and cow's milk were analyzed by Hess and Helman. Those of woman's milk were divided into two groups: those from the "early period" of lactation embracing the first two days after childbrith and those from the "mature period" of later months. The results of these tests confirm, in the main, those reported by previous authors. No relation was found to exist between the fat percentage and the content of phosphatid. There was, however, a definite distinction between the amount of phosphatid in the milk of the "early period" and that in the "mature period." A large number of samples of cow's milk were analyzed for phosphatid and total phosphorus. These analyses showed that cow's milk contains about twice as much phosphatid as human milk. The amount was higher in milk or in cream with a high percentage of fat. However, there was no parallelism between the fat and the phosphatid content. Specimens containing a considerable amount of colostrum also showed a high percentage of phosphatid. The total phosphorus of cow's milk averaged about four times as high as that of woman's milk, and was still higher in the milk of goats.

Journal of Bone and Joint Surgery, Boston

7: 509-762 (July) 1925

Skin Flap Methods in Upper Extremity. A. Steindler, Iowa City.—p. 512.
*Congenital Defects of Long Bones of Lower Limb. R. Ollerenshaw, Manchester, Eng.—p. 528.
*Epicondylitis. R. M. Carter, Green Bay, Wis.—p. 553.
*Attempt to Fuse Hip Joint for Tuberculosis. B. P. Farrell, New York.—p. 563.
Accessory Scaphoid Bone. E. S. Geist, Minneapolis.—p. 570.
*Architecture and Blood Supply of Head and Neck of Femur; Importance in Pathology of Fracture of Neck. A. Kolodny, Iowa City.—p. 575.
Bifurcation Operation for Treatment of Irreducible Dislocations of Hip Joint. R. S. Reich, Cleveland.—p. 598.
*Residual Paralysis and Deformity of Anterior Poliomyelitis. J. I. Mitchell, Rochester, Minn.—p. 619.
Arthrogryposis Multiplex Congenita. P. Lewin, Chicago.—p. 630.
*Primary Tumors of Patella. W. H. Cole, St. Paul.—p. 637.
Generalized Type of Osteitis Fibrosa Cystica. E. H. Eising, New York.—p. 655.
Displacement of Semilunar Carpal Bone: Twelve Cases. J. D. Adams, Boston.—p. 665.
Fractures of Carpal Navicular Bone. K. Speed, Chicago.—p. 682.
*End Results to Illustrate Value of Fixed Traction in Treatment of Fractures of Lower Extremity. H. Winnett Orr and J. E. M. Thomson, Lincoln, Neb.—p. 696.
Paraplegia Associated with Marked Gibbus and Localized Collection of Fat at Site of Gibbus. E. Sachs, St. Louis.—p. 709.
*Simple Method for Elevating Depressed Anterior Metatarsal Arch. B. H. Kyle, Lynchburg, Va.—p. 722.
Hip Flexion Deformity and Extension Frame for Its Correction. L. D. Smith, Boston.—p. 724.
Foot Plate for Osteo-Arthritis of Great Toe. A. Krida, New York.—p. 730.

Congenital Defects of Long Bones.—Ollerenshaw suggests that the congenital defects of long bones have no connection at all with outside pressure, but are due to interference with growth in the limb buds during the first few weeks of fetal life.

Epicondylitis.—The great majority of cases of epicondylitis in which there is a complete absence of objective findings, Carter says, are best treated by prolonged rest; diathermy may be of value; a small number, especially those in which the presence of an inflamed bursa is suspected or proved, should be treated surgically.

Treatment of Hip Joint Tuberculosis.—The operations reported on by Farrell were, with one or two exceptions, complete failures. This is true because fixation of the joint is essential to cure. It cannot be accomplished by apparatus, and no operation has been devised as yet that will assure bony arthrodesis.

Anatomy of Neck of Femur.—Kolodny asserts that the architecture of the head and neck of the femur explains the exact site of the fracture line both in vertical and lateral compression in old and young. The pathognomonic position, eversion, is the result of the action of the ischiofemoral ligament combined with muscular fixation. The question of healing of fractures of the neck is entirely dominated by the difference of nutritional conditions in different types of fractures and in various ages of the patient.

Treatment of Residual Paralysis.—The treatment described by Mitchell, which is employed at the Mayo Clinic, consists of rest, massage, the application of heat, muscle training, and the use of splints and braces. In many cases surgical treatment of the residual deformity is of great benefit. It aids in correcting deformities, stabilizing the limb, and increasing the function of the limb.

Tumor of Patella.—Tumors of the patella are very rare. Cole's case makes the twenty-fifth on record and is the first benign cyst of the patella recorded. All the common tumors of bone have been found in the patella except myxoma.

Fixed Traction Treatment of Leg Fractures.—After an experience of almost one hundred cases treated with fixed traction without a single nonunion, with less than one inch of shortening in any case, and in most cases good anatomic as well as functional results, Orr and Thomson feel convinced that the fixed traction method has proved to be superior to any other.

Elevating Depressed Anterior Metatarsal Arch.—Kyle applies a lift on the sole of the shoe on a line representing the anterior metatarsal joint line of the foot. The lift is merely a triangular wedge which prolongs the sole backward and shortens the shank. When the shoe is placed on a perfectly smooth surface, the only part of it which comes in contact with the surface is the heel and apex of the lift, the sole clearing the surface at the toe about one half inch. Such a lift has been used in about thirty cases with good results in all.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

25: 423-495 (July) 1925

*Is Insulin an Unstable Sulphur Compound? J. J. Abel and E. M. K. Geiling, Baltimore.—p. 423.
Liberation of Absorbed Substances from Proteins. Function of Bile Salts. S. M. Rosenthal, Montreal.—p. 449.
Urinary Excretion of Tartrates Following Administration to Animals. G. E. Simpson, Montreal.—p. 459.
Pharmacologic Behavior of Malic Acid and Its Salts. F. P. Underhill and G. T. Pack, Montreal.—p. 467.

Chemical Analysis of Insulin.—By simple and noninjurious methods Abel and Geiling have separated from insulin-Lilly (8 and 12 rabbit units per milligram) crystalline amino-acids, protein-like fractions of varying sulphur content and low phosphorus content, and such as have a medium or relatively low sulphur content and a high phosphorus content. The active insulin can be removed completely from each of these fractions so that they no longer show a trace of the characteristic hormone. In the course of the purification the insulin rabbit unitage was raised from 8 and 12 to more than 40 in Fractions IV. Proof is furnished that when an "insulin" high unitage is boiled for a short time with tenth-normal sodium bicarbonate the resultant physiologic inactivation is always associated with an alteration in the linkage of a part, if not all, of the sulphur of the hormone. Ammonia is not liberated by this treatment. It has shown that inert fractions contain very little of this labile sulphur, and in all fractions the content of labile sulphur, more especially what the authors have called the "sodium carbonate sulphur," appears to be directly proportional to the degree of hypoglycemic activity, that is to say, the higher the amount of "sodium carbonate sulphur" present in a given preparation, the higher is its potency. Phosphorus is not a constituent of insulin.

Maine Medical Association Journal, Augusta

16: 101-118 (June) 1925

Medical Social Service in Children's Hospital, Portland, Me. I. H. Dyer, Portland.—p. 114.

16: 119-136 (July) 1925

Significance of Pyuria and Hematuria for General Practitioner. H. Jameson, Rockland.—p. 119.
Significance of Colloidal Properties of Gelatine in Special Dietaries. T. B. Downey, Pittsburgh.—p. 126.

New Orleans Medical and Surgical Journal

78: 59-116 (Aug.) 1925

Abuse of Food. J. B. Elliot, New Orleans.—p. 59.
Rheumatic, Syphilitic and Thyroid Heart. J. H. Musser, New Orleans.—p. 61.
Use of Library in Medical Authorship. M. L. Marshall, New Orleans.—p. 65.
Accessory Nasal Sinus Disease in Children. C. A. McWilliams, Gulfport, Miss.—p. 69.
Relation of Orthopedic Surgery to General Medicine. J. T. O'Ferrall, New Orleans.—p. 71.
Pneumothorax Therapy in Tuberculosis. C. H. Cocke, Asheville, N. C.—p. 76.
Secondary Tuberculous Pericarditis; Cases. W. B. Rawls, New York.—p. 81.
Tracheobronchial Diphtheria. M. P. Boebinger, New Orleans.—p. 84.

Rational Operative Procedures in Obstetrics. H. E. Miller, New Orleans. —p. 88.
Muscular Mechanism of Stomach. S. K. Simon and E. C. Samuel, New Orleans.—p. 93.
Case of Hematometra. W. C. Jones, Birmingham, Ala.—p. 95

Ohio State Medical Journal, Columbus

21: 538-616 (Aug.) 1925

Bony Tumors of Orbit. W. L. Benedict, Rochester, Minn.—p. 557.
Two State Operation in Cancer of Pylorus. J. L. Ransohoff, Cincinnati. —p. 562.
Mental Problem; Suggestions for Its Solution. C. W. Sawyer, Marion. —p. 567.
Building a Health Supervision Scheme Into School Curriculum. A. O. Peters, Dayton.—p. 570.
Statistical Study of Bronchial Asthma. M. B. Cohen, Cleveland.—p. 572.

Oklahoma State Medical Association Journal, Muskogee

18: 101-292 (Aug.) 1925

Acute Perforated Gastric and Duodenal Ulcers. S. E. Kernodle, Oklahoma City.—p. 101.
Difficulties in Diagnosis of Diseases of Stomach; Extragastric Causes. L. C. Williams, Pushuska.—p. 184.
Significance of Pain in Right Lower Abdomen. L. J. Starry, Oklahoma City.—p. 187.
Roentgen-Ray Diagnosis of Duodenal Ulcer. S. C. Venable, Tulsa.—p. 190.

Public Health Journal, Toronto

16: 301-350 (July) 1925

Health Insurance. J. H. MacDermot.—p. 301.
Medical Education. C. F. Martin.—p. 310.
Geographical Aspect of Eugenics. V. Cornish.—p. 317.
Local Health Administration. J. W. S. McCullough.—p. 320.
Generalized Public Health Nursing in British Columbia. I. Jeffares.—p. 323.
Endo's Medium. N. M. Harris.—p. 326.
Classification of Medical Schools. J. C. Connell.—p. 327.
Medical Education. J. J. R. MacLeod.—p. 330.

South Carolina Medical Association Journal, Greenville

21: 157-184 (July) 1925

Indications for Tonsillectomy in Adults. E. F. Parker, Charleston.—p. 159.
Practical Application of Blood Chemistry. G. F. Klugh, Atlanta, Ga.—p. 160.
Cancer as a State Board of Health Problem. J. A. Hayne, Columbia. —p. 161.
Embolectomy. S. O. Black, Spartanburg.—p. 164.

Southern Medical Journal, Birmingham, Ala.

18: 563-634 (Aug.) 1925

Secretin. E. C. Prentiss, El Paso.—p. 563.
*Virulent Diphtheria Bacilli in Fowls. W. Litterer, Nashville, Tenn.—p. 577.
Psychologic Aspect of Railroad Injury. B. R. Tucker and R. F. Gayle, Richmond, Va.—p. 581.
Importance of Correct Principles and Concerted Action in Dealing with Litigious Traumatic Neurosis. T. A. Williams, Washington, D. C. —p. 584.
Old Age Problem. G. W. F. Rembert, Jackson, Miss.—p. 588.
Rural Problems in Maternity and Child Health. J. H. M. Knox, Jr., Baltimore.—p. 593.
Treatment of Cystin Stone. J. U. Reaves, Mobile.—p. 599.
Nephrolithiasis. G. R. Livermore, Memphis.—p. 603.
Prostatic Deaths. F. S. Schoonover, Fort Worth.—p. 607.
Occipito-Posterior Presentation. B. C. Hirst, Philadelphia.—p. 616.
Acute Hemorrhagic Pancreatitis Complicated by Nephritis. J. N. Fogarty and I. M. Hay, St. Augustine, Fla.—p. 617.
Industrial Eye Injuries. R. Caldwell, Little Rock, Ark.—p. 619.
Incidence of Mastoid Disease in the United States. A. Blalock, Nashville, Tenn.—p. 621.
Supply of Physicians in Southeastern States. E. R. Clark, Augusta, Ga. —p. 622.

Virulent Diphtheria Bacilli in Fowls.—Two hundred and fifty-six cases were investigated by Litterer in which virulent Klebs-Loeffler bacilli (acute or carrier) existed in a family which owned fowls suffering from ailments such as roup, fowl diphtheria, cholera, etc. The total number of sick fowls examined was 1,126. Out of this number there were two instances in which several fowls in each flock harbored virulent diphtheria bacilli. Culturally, tinctorially and by virulence tests, the Klebs-Loeffler bacilli isolated from the fowls were identical to the diphtheria bacilli isolated from each child in the two families owning the fowls. Successful inoculations of the virulent Klebs-Loeffler bacilli isolated from the fowls were produced in other fowls suffering with roup, and these experimental fowls were later cured by the administration of diphtheria antitoxin. Likewise, the virulent Klebs-Loeffler bacilli isolated from the two children were successfully inoculated into fowls suffering with roup and these experimental fowls were subsequently protected by diphtheria antitoxin. In one instance it was evident that fowls can transmit virulent diphtheria bacilli to the human being. Although the condition is comparatively rare, it opens up a new field for the means of dissemination of virulent Klebs-Loeffler bacilli among human beings.

Southwestern Medicine, Phoenix, Ariz.

9: 255-292 (July) 1925

Current Progress and Trend of Preventive Medicine. D. B. Williams, Sante Fe, N. M.—p. 255.
Renal Function Estimation in General Practice. E. A. Duncan, El Paso, Texas.—p. 256.
Method to Minimize Negative Phase in Vaccine Therapy. O. H. Brown, Phoenix, Ariz.—p. 260.
Knee Joint. E. H. Brown, Phoenix, Ariz.—p. 263.
Static Deformities of Feet. R. D. Kennedy, Globe, Ariz.—p. 266.
Constipation. J. A. Smith, Roswell, N. M.—p. 268.
Sinus Infections. W. E. Vandevere, El Paso, Texas.—p. 271.
Urologic Pilgrimage. C. S. Vivian, Phoeniz, Ariz.—p. 272.

Texas State Journal of Medicine, Fort Worth

21: 161-216 (July) 1925

Tuberculosis of Eye. W. C. Finnoff, Denver.—p. 173.
Anatomic Explanation of Some of Sphenopalatine Ganglion Phenomena. C. C. Cody, Houston.—p. 178.
*Fetal Protein Intoxication Fundamental Factor in Vomiting of Pregnancy. W. S. Horn, Fort Worth.—p. 180.
Use of Acidified Cow's Milk in Artificial Feeding of Infants. J. F. Perkins, Dallas.—p. 185.
Experience with Potter Version. H. W. Johnson, Houston.—p. 190.
Local Anesthesia (Splanchnic) in Abdominal and Pelvic Surgery. P. R. Denman, Houston.—p. 193.
Adequate Treatment for Hereditary Syphilis. F. S. Schoonover, Jr. Fort Worth.—p. 199.
Cancer Treatment; Regional Type and Period Problem. H. Crouse, El Paso.—p. 202.

Fetal Protein Intoxication in Vomiting of Pregnancy.—The Spanish obstetrician Udaeta believes that the toxemias of pregnancy, particularly vomiting, are the result of intoxication caused by the products of gestation. It occurred to Horn that if Udaeta's observations were correct, it would be possible to establish the cause of the vomiting of pregnancy based on accurate observations checked against the blood types occurring in mother, father and child. His first investigation was made on a woman who was extremely toxic, having retained nothing by mouth for ten days. The vomiting had begun at the fourth week of pregnancy and had continued uninterruptedly, regardless of efficient treatment. This patient's blood was matched against her husband's and a double crossed agglutination occurred. Accordingly, a subcutaneous injection of 1 c.c. of the husband's whole blood was given; twenty-four hours later, 5 c.c. was injected, and two additional injections of 5 c.c. each were made at twenty-four hour intervals. At the end of forty-eight hours the patient was feeling fine, had no nausea, and was eating and drinking as freely as she desired. Horn used glucose intravenously to combat the extreme acidosis, but no further treatment was given and the symptoms did not recur. A perfectly healthy child was born two months later. The mother's blood was found to be in Group III, the father's in Group II, and the child's in Group II. Horn is convinced that fetal protein intoxication must have some relation as a causative factor to the vomiting of pregnancy. Since then he has treated seven other cases with quite convincing results. He emphasizes the point that the selection of the blood type to be used in immunizing the mother is important. In the majority of cases the father's blood will probably suffice. The technic he employes is to withdraw 30 c.c. of the husband's blood into 10 c.c. of 10 per cent. sodium citrate solution and keep it at icebox temperature for preservation. For immunization or desensitization he has given injections of this citrated whole blood at daily intervals, beginning with 2 c.c. each day up to 10 c.c. at the fifth and last injection. Subsequent injections in two cases were necessary. The most satisfactory results are obtained by intramuscular rather than subcutaneous injections.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

48: 153-277 (June) 1925

*Amyotrophic Meningomyelitis. Spinal Progressive Muscular Atrophy of Syphilitic Origin. J. P. Martin.—p. 153.
*Histology of Juvenile Amaurotic Idiocy. J. G. Greenfield and G. Holmes. —p. 183.
*Pathogenesis of Subacute Combined Degeneration of Spinal Cord; Connection with Pernicious Anemia, Achlorhydria and Intestinal Infection. A. F. Hurst.—p. 218.
Sensory Jacksonian Fits. O. Sittig.—p. 233.
Physiologic Studies on Patellar Reflex. I. Patellometer. J. R. Pereira. —p. 255.
Hemangeioma of Pia Mater Causing Compression Paraplegia; Five Cases. P. Sargent.—p. 259.

Syphilis as Cause of Spinal Progressive Muscular Atrophy.—In Martin's experience syphilis is the commonest cause of chronic spinal progressive muscular atrophy of the atonic type. Two such cases have been examined pathologically; they both showed: (*a*) a leptomeningitis; (*b*) marginal degeneration of the white matter of the cord; (*c*) very severe destruction of the cells of the gray matter of the cervical enlargement; (*d*) arteritis of the meningeal and intraspinal arteries and perivascular infiltration along the vessels. The first case presented in addition: (*e*) a diffuse degeneration of the anterolateral white matter of the cord; (*f*) ependymitis in the fourth ventricle and iter of Sylvius; and (*g*) granulomatous outgrowths on the ependymal and meningeal surfaces of the medulla oblongata. These changes are regarded as the result of a syphilitic inflammation and the process may be designated by the term "amyotrophic meningomyelitis." The pathologic findings, and also certain of the clinical and therapeutic characters, indicate that the disease process begins in the spinal leptomeninges, and that the destructive influence affects the cord mainly from the surface inward; the lymph channels probably aid its penetration to the central parts of the cord. From an analysis of sixty cases the main clinical features are given as follows: atrophy of the "atonic" type beginning (*a*) in the small muscles of the hands, (*b*) in the shoulder muscles or (*c*) in the muscles on the outer side of the leg; it may be unilateral or bilateral; its onset is not infrequently preceded by pain; spasticity of the lower limbs may come on; bulbar symptoms are uncommon; the vibration sense may be impaired; there may be difficulties of sphincter control. Argyll Robertson pupils were only present in 28.5 per cent. of these cases. The Wassermann reaction is negative in the blood in one third of the cases; there is not sure case in this series in which it was negative in the cerebrospinal fluid before any antisyphilitic treatment had been given. In four cases, personally observed, the progress of the disease has been arrested by antisyphilitic treatment; similar results have been recorded by others.

Histology of Juvenile Amaurotic Idiocy.—The two cases described by Greenfield and Holmes belonged to the same generation of a family, the other members of which were healthy as far as could be ascertained. The parents came of pure English stock in which no intermarriage with Jews had occurred. A maternal uncle was mentally defective, due, it is stated, to instrumental delivery at birth, but though unable to read he has earned his own living and served in the army during the late war. The other collaterals of both parents and their descendants are all healthy. The essential lesion of the disease is a special form of degeneration of the cell body, associated with the deposition in it of a peculiar form of lipoid. In many instances the axons undergo a secondary degeneration, but in other systems the axonal processes remain intact, though the cells that give them origin are severely affected. The finer histologic features, as well as the severity of the disease, varied in different systems of neurons, but all belonged to the same type.

Condition of Alimentary Canal in Addison's Anemia.—Hurst has investigated the condition of the alimentary canal in twenty-six cases of Addison's anemia, many of which had also symptoms or signs of organic nervous disease. He emphasizes the fact that these conditions are due to the association of oral sepsis with the absence of free hydrochloric acid throughout digestion, and the consequent intestinal infection and toxemia. The signs and symptoms of nervous disease, which are observed sooner or later in about 80 per cent. of cases of Addison's anemia, are due to subacute combined degeneration of the cord, and the anemia, which develops in almost all cases of the spinal disease before death occurs is of the addisonian type, hence the division between the two associated diseases is quite artificial. Achlorhydria was present in all of the thirty-six cases of Addison's anemia examined by means of a fractional test meal. Hurst believes that the familial occurrence of achylia gastrica must be the explanation of the familial occurrence of Addison's anemia. Six out of his series of thirty-six cases of Addison's anemia had one or more relations who died of the disease. Eight cases are recorded in which achylia gastrica was discovered from one to thirteen years before the onset of symptoms of anemia. Hurst has seen two cases, in which Addison's anemia was associated with achlorhydria, which was apparently the result of chronic alcoholic gastritis, as cirrhosis of the liver was present. In the majority of cases of Addison's anemia and subacute combined degeneration of the cord obvious pyorrhea alveolaris is present. In 77.5 per cent. of twenty-eight cases of Addison's anemia and twelve of subacute combined degeneration of the cord, *Streptococcus longus* was found, compared with 20 per cent. of 145 cotrols. In many of the latter they were scanty and slow growing. In four of the seven cases of Addison's anemia, and in one of the two cases of subacute combined degeneration of the cord in which streptococci were isolated from the duodenal contents, large doses of hydrochloric acid had previously been given.

British Journal of Dermatology and Syphilis, London

37: 301-346 (July) 1925

Case of Relapsing Nonsuppurative Nodular Panniculitis, Showing Phagocytosis of Subcutaneous Fat Cells by Macrophages. F. P. Weber.—p. 301.
Scabies; Paleontology of Acarus. G. Pernet.—p. 312.
*Case of Lupus Disseminatus (Postexanthematic Miliary Tuberculosis Cutis). H. Sundt.—p. 316.

Lupus Disseminatus.—Disseminated lupus with its miliary lesions, Sundt says, is a type of postexanthematic tuberculid in children, and has a practical significance in that it gives warning of a tuberculous infection having taken place. In his case it was the first manifestation of the infection which two or three years later, probably after a trauma, was followed by tuberculous spondylitis. The skin lesion disappeared within a few weeks, after having been there for three years, undoubtedly due to the sun treatment given, which, by also pigmenting the cicatrices left, made these disappear or made them far less prominent. Sundt thinks that lupus disseminatus is in its slighter forms considerably more frequent than is generally supposed. The small, white, round cicatrices, which are frequently seen by scrofulotuberculous patients, are probably the remains of an old, scarcely noticed tuberculous exanthem, perhaps most often of the pauplonecrotic form, but no doubt sometimes of disseminated lupus of the type here described.

British Journal of Radiology, London

30: 241-282 (July) 1925

Radiation Biology of Carcinoma. Opitz.—p. 252.
Case of Complete Obliteration of Heart Shadow. W. F. Thompson.—p. 264.
*Prevention of Sickness After Roentgen-Ray Treatment. E. H. Zweifel. —p. 267.
Treatment of Tumors of Skin. A. Burrows.—p. 269.

Prevention of Sickness After Roentgen-Ray Treatment.—Sickness after roentgen-ray treatment is avoided by Zweifel by the use of lead boxes encasing the tubes, so constructed that no rays can escape to the patient except for the beam directed on the tumor, which passes, first, through the zinc or copper filter. Zweifel prefers the box made by Siemens. This box has been in use for eighteen months, during which 200 treatments of from four to six hours or more duration have been given according to the principles of the Erlangen school to patients suffering from fibroids or cancer, and not a single case of sickness has occurred. Cases of tumor of the liver and cancer of the stomach have also been treated.

British Medical Journal, London

2: 153-184 (July 25) 1925

Evolution of a Health Resort (Bath). F. G. Thomson.—p. 153.
Some Investigations of Sensation. J. S. B. Stopford.—p. 157.
Nervous Child as Seen in Medical Practice. B. Myers.—p. 158.
*Incidence of Arteriosclerosis in Various Arteries. D. R. Dow.—p. 162.

Arteries Affected by Arteriosclerosis.—An investigation was undertaken by Dow to ascertain which vessels in the body were most frequently and most extensively affected with arterial degeneration. The material examined was obtained from the dissecting rooms and consisted of eight bodies in an excellent state of preservation. The abdominal aorta, common iliac, femoral and popliteal arteries were more frequently and more extensively affected than any other vessels. The internal iliac arteries were more commonly involved than the external iliac arteries. It was a striking fact that the mesenteric arteries were seldom the seat of degeneration. In one instance only was the inferior mesenteric artery affected. The parietal vessels in the pelvis, especially the gluteal and pudendal arteries, were affected to a very marked degree. They offered a comparison with the visceral branches in the pelvis, which were seldom involved. The portion of the internal carotid artery which lay in the cavernous sinus, and the part involving its bifurcation into anterior and middle cerebral arteries, frequently presented arterial degeneration of a very advanced degree. The vessel wall in this region was usually sacculated. The cervical portion of the internal carotid was subject to a very small amount of degeneration. The vessels of the lower limb were more frequently and more extensively affected with arteriosclerosis than those of the upper limb. In one specimen only was the axillary artery markedly involved, and only in one brachial artery was a small patch of degeneration present. A very different condition was found in arteries of approximately the same caliber in the lower limb, where the femoral and popliteal arteries were extensively affected. The radial arteries (when involved) showed degenerative changes just above the wrist joint, but were not affected higher up. The tricuspid valve and pulmonary artery were not implicated in any of the specimens examined. They offer a striking comparison with the mitral valve and thoracic aorta, both of which were found to be a frequent site of degeneration.

Glasgow Medical Journal

22: 1-64 (July) 1925

*End-Results of Pleurisy with Effusion in Children. S. Graham.—p. 1.
Talipes. W. Rankin.—p. 8.
*Chronic Catarrhal Colitis. D. Cameron.—p. 16.

End-Results of Pleurisy with Effusion in Children.—Of fifty-six cases of pleurisy with effusion in children reported by Graham the subsequent history was obtained in thirty-nine. Thirty-two children appeared to have recovered completely. In the remaining seven cases (17.9 per cent. of those traced) subsequent tuberculous lesions developed, and in two of these they proved fatal, while in one other the prognosis is extremely grave. In those cases in which a subsequent lesion did develop it became manifest within one year after recovery from the initial illness. The most common evidence of a previously existing pleurisy with effusion in a child is a flattening of the affected side. This was detected in 68 per cent. of the cases, but gives rise to no symptoms, and tends to disappear as adult life is reached. It would seem unlikely that in pleurisy with effusion in children there is a primary lesion in the lung.

Chronic Catarrhal Colitis.—In Cameron's opinion chronic catarrhal colitis occurs more often than has been stated. These cases give a history of abdominal pain, flatulence, irregularity of the bowels and mucus in the stools, lassitude, headaches and inability to concentrate. They are of sallow complexion and poor muscle tone. The heart is irritable. They present tender areas on abdominal palpation.

International Journal of Psycho-Analysis, London

6: 247-365 (July) 1925

Influence of Oral Erotism on Character Formation. K. Abraham.—p. 247.
Psychoses: Their Mechanisms and Accessibility to Influence. R. Walder.—p. 259.
Hindu-Muslim Unity. O. Berkeley-Hill.—p. 282.
Peculiar Custom Observed on Island of Marken, Holland. H. C. Jelgersma.—p. 288.
Sensation and Narcissism. R. O. Kapp.—p. 292.
Case of Kleptomania in Girl Ten Years Old. M. Chadwick.—p. 300.
Psychology of Effect Produced by Morphin. L. Lévy.—p. 313.

Journal of State Medicine, London

33: 303-350 (July) 1925

Some Anomalies of Local Public Health Administration. Sir A. Newsholme.—p. 329.

Lancet, London

2: 163-212 (July 25) 1925

Evolution of Health Resort. F. G. Thomson.—p. 163.
*Disorders of Motility and of Muscle Tone: Special Reference to Corpus Striatum. III. S. A. K. Wilson.—p. 169.
Hereditary Deforming Dyschondroplasia. A. G. Ord.—p. 178.

Disorders of Motility.—Wilson says: We have noted the close resemblance of choreic movements to "voluntary" movements, the existence of "little signs" pointing to disturbance of corticospinal function, the occurrence both in "voluntary" and in "involuntary" choreic action of indentical clinical characteristics; we have seen the connection between "paralytic" and hyperkinetic chorea, and realized how these are but differing aspects of derangement of the same efferent mechanism; while the occurrence in confluent chorea (as I call it) of motor incoordination which clearly demonstrates the abrogation of the law of reciprocal innervation by disease has also been exemplified. The argument from these clinical data which Wilson offers is as follows: Complete paralysis, as in, say, anterior poliomyelitis, is never under any circumstances associated with the appearance of involuntary movements in the affected limbs; similarly, in the case of a recent, complete, flaccid hemiplegia no involuntary movement (posthemiplegic chorea or athetosis) makes its appearance until there is clinical evidence of some return of power in the power in the paralyzed limb or limbs. Even in cases of severe chorea the corticospinal is never "paralyzed" but where "paralytic chorea," so-called, is noted, the spontaneous movements are at a minimum. It is difficult to resist the conclusion that for the appearance of choreiform disorder relative integrity of the pyramidal or corticospinal tracts is essential. The corollary is, that this integrity is not absolute, in view of (1) the presence of the choreic phenomena themselves and (2) the above mentioned signs or indications of slight concomitant corticospinal dysfunction. Wilson emphasizes that the derangement constituting chorea need not have its actual origin on the motor (effector) side of cerebral (cortical) mechanisms.

National Medical Journal of China, Shanghai

11: 151-218 (June) 1925

Gonorrheal Ophthalmia. C. H. Chou.—p. 151.
*Treatment of Schistosoma Japonica. J. T. Tai.—p. 158.
*Left Inguinal Hernia with Cecum as Part of Its Contents; Case. E. Y. Kau.—p. 166
Case of Typhus Fever. K. H. Li.—p. 169.
Importance of Venereal Clinics St. Luke's Genito Urinary Clinic, Shanghai. M. L. Tsang.—p. 172.

Treatment of Schistosoma Japonica.—Tai reports his results in fifty-two cases. Sodium antimony tartrate was of definite value in the treatment of schistosomiasis; while colloidal antimony was less efficient. Emetin treatment is definitely indicated whenever there is any difficulty in intravenous injection; especially in children. Prolonged use of antimony preparations has always some potential danger; especially in advanced cases; while emetin treatment has not shown any bad effect so far. Practically none of the very advanced cases were cured by any sort of treatment; and very few were improved. No cure can be promised unless the patient can stay for treatment for at least one month's period. As an indication that all parasites have been killed, one week's daily negative fecal examinations is the minimum, and two weeks continuous watch is preferable.

Hernia of Cecum.—The case cited by Kau was a congenital hernia of the funicular type. The presence of the cecum in the hernia is explained by the existence of an ascending mesocolon with elongation of the mesocecum, which permitted the cecum to become a content of a hernia of the left oblique, inguinal variety.

Annales de l'Institut Pasteur, Paris

39: 387-483 (May) 1925

*Carbon Dioxid and Diphtheria Bacillus. G. Abt.—p. 387.
Anaerobic Streptococci. A. R. Prévot.—p. 417.
*Cattle Plague Virus in Green Hides. H. Schein and M. Jacotot.—p. 448.
*Treatment of Parasitic Fungus Affection in Plants. C. Picado.—p. 462.
Action of Certain Chemicals on the Tubercle Bacillus. Karwacki and Biernacki.—p. 476.

Source of Energy for the Diphtheria Bacillus.—Abt's research demonstrated that 1.1 gm. of desiccated diphtheria bacilli develop 4 gm. of carbon dioxid in 1,100 c.c. of Martin's broth. About 80 per cent. of the carbon dioxid is produced in ten or twelve days; 95 per cent. in twenty days. The maximal activity of the bacillus seems to occur the first two days, with a slightly alkaline reaction of the culture. About one third of the carbon dioxid is formed from the acetic, butyric or lactic acids present in the broth; the other two thirds from the protein substances of the medium. He suggests that the diphtheria bacillus may use the glutamic acid for production of the carbon dioxid. Over 2 liters of oxygen are utilized for one culture unit.

Persistence of Plague Virus in Green Hides.—Referring to the prohibited import of green hides from countries suspected of cattle plague, Schein and Jacotot assert that green hides exposed to twenty days' salting and a thorough brushing may be considered as free from the parasites of cattle plague.

Toxin-Antitoxin Mixtures in Treatment of Plants.—Picado added 0.5 per cent. of sodium chlorid (toxin) and 0.24 or 0.6 per cent. of calcium hydrate (antitoxin) to the soil where beans were growing. This neutralized mixture did not affect the plants, but seemed to prevent or decrease the development of parasitic fungi on the plants, especially the fusarium. A mixture of mercurous chlorid (toxin) at 0.02 per cent. with sulphur (antitoxin) at 0.008 per cent. proved a "toxin-antitoxin" combination not injuring the plant, but toxic for the parasite, and thus checking the infection.

Annales de Médecine, Paris

17: 561-648 (June) 1925

*Postoperative Parathyroprival Tetany. P. Sainton et al.—p. 561.
Tuberculosis Plus Gas Gangrene Infection. Caussade et al.—p. 586.
*Heredity of the Soil in Tuberculosis. Debré and Lelong.—p. 601.
Vegetative System and Gland Disturbance in Chinese. Porak.—p. 624.
Thirty-One Cases of Endocarditis Lenta. A. Calugareanu.—p. 633.

Case of Parathyroprival Tetany Consecutive to Thyroidectomy.—The case, observed by Sainton and his co-workers in a woman, aged 31, presented a clinical picture and course like that from experimental removal of the parathyroid glands. The acute phase of the disease started three days after the operation, and was shortly followed by trophic disturbances through the second, latent phase (fall of the hair, nails and teeth, bilateral cataract). The intermittent paroxysms did not seem to be connected with the menses; they occurred during the day, and were most frequent in winter and spring, especially in the latter season. The blood showed an exaggerated alkalinity and a decrease in ionized calcium and glucose. The disturbed acid-base balance may, as in epilepsy, induce or contribute to induce the attack. The different character of the paroxysms in the two affections may possibly be due to the involvement of different toxins. A two months' treatment with calcium chlorid (8 gm. daily) combined with the parathyroid extract brought about notable improvement. The same results were obtained with ultraviolet rays, applied in eleven exposures, with a total of thirty minutes. The effect however was transient, but for a few days it surpassed that of any other measures. They detail the findings as to neuromuscular chronaxia. The tetany was still evident when last seen, forty-three months after the thyroidectomy, but the hair and nails were normal. The cataracts persisted.

Heredity in Tuberculosis.—Discussing the arguments offered for the inheritance of the predisposed soil for the infection, Debré and Lelong assert that only normal physical and mental properties are transmitted from the ovum to the developing fetus (cellular heredity), as, for instance, the color of the hair, skin or iris; also constitution and temper. A pathologic inheritance is exceptional, and manifests itself in certain deformities, obesity, hemophilia, constitutional status, rather than diseases. The passage of tuberculous antibodies through the placenta may occur without the passage of pathogenic elements from the mother to the fetus. It is conceivable that the maternal antibodies, remaining in the blood of the new-born for several weeks, may influence the appearance of a deformity, as well as exert an action on the predisposition or immunity of the infant.

Bulletin de l'Académie de Médecine, Paris

94: 805-832 (July 21) 1925

Recrudescence of Alcoholism in France. C. Achard.—p. 807.
The Anopheles of Corsica. E. Brumpt.—p. 811.
*Encephalitis Consecutive to Vaccination. Bastiaanse.—p. 815.
*Postvaccinal Encephalitis. A. Netter.—p. 821.
"Encephalitis Following Vaccination." L. Camus.—p. 826.
*Treatment of Cracked Nipples. P. Chatin.—p. 828.

Epidemic Encephalitis Consecutive to Smallpox Vaccination.—Bastiaanse and his co-workers had opportunity to study several of the thirty-four cases of encephalitis which developed among 240,000 young children vaccinated in the last year and a half, at a time when epidemic encephalitis was prevalent. The encephalitis symptoms appeared from nine to fifteen days after the vaccination. No sequelae were noted in the 58.8 per cent. surviving cases out of the total thirty-four. They believe that vaccination made during an epidemic of encephalitis may rouse to active manifestations an encephalitis existing previously in a latent stage. It is also possible, they say, that some still unknown virus may be responsible for the encephalitis under these special conditions.

Smallpox Vaccination and Encephalitis.—Analyzing Bastiaanse's report, Netter advises to refrain systematically from vaccination during an epidemic of encephalitis. Outside of such epidemic conditions, smallpox vaccination should be used without restrictions.

Ultraviolet Rays in Treatment of Fissures of the Nipples.—Chatin treated with the quartz mercury lamp twelve women for slight fissures of the nipples. The irradiations were made every second day, starting with two minutes; the exposures were gradually prolonged by two minutes, reaching finally ten minutes. The pain was sometimes relieved after one exposure; the healing of the cracks was rapid, and recovery was complete in one or two weeks. He suggests that pigmentation of the areola may be a defensive process.

Bulletins de la Société Médicale des Hôpitaux, Paris

49: 1057-1088 (July 10) 1925

Metastatic Extradural Lymphosarcoma. Guillain et al.—p. 1057.
Dilatation of Bronchus with Displacement of Trachea. Coyon et al.—p. 1061.
*"Dry" Chlorid Retention. L. Blum and van Caulaert.—p. 1065.
*Rôle of Sodium in Dropsy. L. Blum and van Caulaert.—p. 1067.
Case of Meningo-Ependymitis. Vialard and Darleguy.—p. 1073.
*Prophylaxis of Gastro-Enteritis. Ribadeau-Dumas and Fouet.—p. 1077.
*Rat-Bite Fever and Syphilis. Apert et al.—p. 1080.
Hodgkin's Disease in Man of 54. Lévy *et al.*—*p. 1084.*

"Dry" Retention of Chlorids Associated with Urinary Maladies.—Blum and van Caulaert's experience has shown that retention of chlorids without edema is frequent in cases of urine intoxication, presenting purulent urine, polyuria or pollakiuria. In four patients, aged from 48 to 60, the characteristic blood concentration with its excess of chlorids and deficit of sodium was manifest. A salt-free diet benefited these patients even more than it benefited those with chronic nephritis. The feeling of thirst, dryness in the mouth and digestive disturbances, as well as the polyuria, subsided, while the general condition improved considerably. The dry retention of chlorids thus seems to be an important and a curable element in the clinical picture of urosepsis.

Sodium Retention with Tendency to Edema in Epithelial Nephritis.—Analyzing their two cases, Blum and van Caulaert say that there may be simultaneous retention of sodium and of chlorin; but the characteristic feature is the higher ratio of sodium to the chlorin. When the sodium is in excess, there is dilution of the blood. This confirms the rôle of sodium in dropsy.

Prophylaxis of Acute Gastro-Enteritis in Infants.—Ribadeau-Dumas and Fouet consider the most effective measure in prophylaxis of summer diarrhea of infants the use of canned or desiccated milk instead of boiled fresh milk.

Three Cases of Rat-Bite Fever at Paris.—The aspect of the patients and the course of the disease confirmed the close clinical analogy between this infection and syphilis. The incubation period, followed by fever with swelling of the wound, the inflamed glands and skin eruption, are alike in both. The eruption appeared somewhat late (probably due to sensitization of the organism), and was located on the upper part of the body. An adequate arsenical treatment brought about recovery, while bismuth treatment proved futile. The young of infected guinea-pigs were dystrophic.

Gynécologie et Obstétrique, Paris

11: 401-476 (June) 1925

*Improved Subcutaneous Symphyseotomy. E. Zarate.—p. 401.
Subcutaneous Symphyseotomy in Cuba. J. Ortiz-Perez.—p. 411.
*"Eclampsism." S. A. Sélitzky.—p. 428.
Present Status of Treatment of Cancer of the Uterus. Revel.—p. 432.
*Pregnancy Transverse Myelitis. Gueissaz.—p. 446.
Total Colpectomy for Genital Prolapse. H. Hartmann.—p. 452.

Improved Subcutaneous Symphyseotomy.—Zarate uses merely a bistoury with a 5 cm. cutting edge. He introduces it perpendicularly, 0.5 cm. below the margin of the articulation, and then slants it to sever the entire fibrocartilage and the anterior ligament. The patient's legs are held in forced abduction, flexed on the abdomen. The ends of the bones are kept from spreading apart by the ligament of Henle below and by the crossed fibers of the great oblique muscle above. It is dangerous to cut the lower ligament, but the upper crossed fibers can be severed with impunity. They become more horizontal as the pubis separates. Without turning the bistoury, these fibers can be clipped apart. The symphysis then gapes, possibly for 3.5 cm. in the anterior portion, and exaggerating the abduction may bring it to three fingerbreadths. Pressure with the fingers in the vagina on the interpubic gap, and with gauze on the minute incision made by the entrance of the bistoury arrests the bleeding. The arch has to be completely divided before the symphysis can spread apart. The extreme abduction insures this by tearing the lower ligament. The root of the clitoris, etc., separates from the bone and flees before the bistoury; the bladder slides backward, and the urethra is protected by the ligament of Henle. With this technic he has never had any mishaps. He describes experiments on seven still warm cadavers which confirmed the special fibers that interfere to prevent the spreading of the severed articulation.

"Eclampsism."—Sélitzky applies this term to the set of symptoms warning of impending eclampsia. It is often possible to avert it by bed rest, purgation, milk diet, and moist heat to the lumbar regions, supervising the urine and blood pressure. The use of sedatives should be restricted. Among the subjective phenomena are muscular jerking, dyspnea, pruritus, impairment of vision and hearing, asthenia and drowsiness. The objective signs may include, besides rapid pulse, hypertension and weakening of the heart sounds, a tendency to cyanosis and jaundice.

Pregnancy Transverse Myelitis.—In Gueissaz' case the total paralysis of the legs developed suddenly the seventh month of the woman's twelfth pregnancy, and subsided after cesarean section. She was able to walk alone in seven weeks. In five analogous cases of pregnancy transverse myelitis with a sudden onset, four of the women died. In seven with a gradual onset, all survived. One of the women had recurrence at three pregnancies. The paralysis developed in the second to the eighth month. The youngest patient was 21. Necropsy in this case failed to show even a microscopic lesion of the spinal cord.

Lyon Chirurgical

22: 293-456 (June) 1925

Myomas with Pulmonary Tuberculosis. J. F. Martin et al.—p. 293.
Indications for Treatment of Varices in Adults. Oudard et al.—p. 299.
Uremia from Surgical Standpoint. M. Arnaud.—p. 319.
Certain Abnormal Conditions in Arteries. R. Leriche.—p. 326.
Cancer in Stump of Uterus. Gignoux and Pollosson.—p. 330.
The Future of Surgery. R. Leriche.—p. 339.

Presse Médicale, Paris

33: 961-976 (July 18) 1925

*Splenectomy for Hemorrhagic Purpura. A. Chauffard and P. Duval.—p. 961.

Chronic Hemorrhagic Purpura Cured by Splenectomy.—The case observed by Chauffard and Duval, in a young girl, was characterized by a long bleeding time, variable from twenty or thirty minutes to two hours, and by a decrease of the blood platelets. Examination of the patient ten weeks after the spleen had been removed showed apparently complete clinical recovery, and a normal condition of the blood. The sclerotic spleen, which destroys the red corpuscles in hemolytic jaundice, may affect the platelets in hemorrhagic purpura.

33: 977-992 (July 22) 1925

*Local Treatment in Puerperal Septicemia. Lévy-Solal and Simard.—p. 977.
"Vernes' and the Wassermann Tests for Syphilis." A. Vernes.—p. 979.

Specific Dressings Applied Locally in Puerperal Infection.—Lévy-Solal and Simard used filtered cultures of streptococci, from severe cases of puerperal infection, the strains frequently renewed. Gauze impregnated with the antivirus was introduced to pack the uterine cavity and the vaginal culdesacs. The dressings were changed from three to five times, each twenty-four hours. No less than three dressings were applied, even when the fever subsided after the first. This treatment, employed in the early stage of puerperal septicemia, was followed by recovery in all the eight cases. No infection occurred in the nineteen cases with prolonged labor and fever, the specific dressings being used as a prophylactic measure. A rapid recovery was also noted in three cases of septicemia, of six and eight days' duration, following an artificial delivery. The dressings appeared to be harmless.

33: 993-1008 (July 25) 1925

*Relapses and Recurrences of Tetanus. Bérard and Lumière.—p. 993.
Natural and Acquired Reactivity. C. Zoeller.—p. 994.
Antianaphylactic Action of Mineral Waters. V. Aubertot.—p. 996.

Relapses and Recurrences in Tetanus.—Bérard and Lumière cite Péhu and Mantelin's case in which there was recurrence of tetanus, after a five months' interval, in a child, aged 4. On the basis of their 140 personal observations in the war, they assert that relapses or recurrences of tetanus, occurring after a prolonged interval, should be considered as reinfection from a new invasion of the bacillus, or as liberation of bacterial spores which had penetrated into the organism with some foreign body and had retained their virulence for weeks or months. The immunity induced by the specific antiserum becomes rapidly attenuated. The preventive injections do not delay the phenomena of tetanus but merely seem to reduce their gravity. They reiterate that an attack of tetanus does not confer any active or passive immunity to further attacks, and emphasize anew the importance of giving the antiserum again before any secondary operation later.

Revue Française de Pédiatrie, Paris

1: 1-124 (June) 1925

*Heat Regulation in Infants. Ribadeau-Dumas and Fouet.—p. 3.
*Etiology of Tuberculosis in Children. Debré and Cordey.—p. 16.
Tetany in Children. E. Lesné et al.—p. 40.
Physiology and Pathology of Infant Feeding. P. Rohmer.—p. 73.

Abnormal Temperature in the New-Born.—Ribadeau-Dumas and Fouet describe the case of an infant, aged 3 weeks, who had constantly presented an irregular temperature, characterized by sudden rises and falls. The extreme range was from 28 to 42 C. (82.4 to 107.6 F.), the abrupt fluctuations recurring during the two months it lived. There was nothing to indicate infection. Necropsy showed softening of the cerebral cortex in both hemispheres, with hydrocephalus. They assume that certain fevers of unknown origin in the new-born and infants may be traceable to clinically undetected lesions of the central nervous system, caused by some birth injury or unrecognized infection.

Rôle of Contagion in Etiology of Tuberculosis in Children.—Debré and Cordey's research on 230 children, from 5 to 15 years old, with bone, joint or pulmonary tuberculosis, revealed that in 91.2 per cent. of the cases the infection was due to known contagion. Investigation of the conditions in regard to twenty-five of the same age, with different nontuberculous affections, as well as of fifty with a negative skin reaction, demonstrated that 80 per cent. of these children had not been in contact with tuberculous persons. Only 20 per cent. might have been exposed to a suspected or minimal contagion. Children with a positive skin reaction, exposed to prolonged contact with a tuberculous person, may develop a latent tuberculosis. The danger from contact with a tuberculous subject is greater the younger the child, as its allergy is weak.

Revue Médicale de la Suisse Romande, Geneva

45: 457-544 (June 25) 1925. Dedicated to M. Askanazy

*Serial Microscopic Control of Cancers. G. Roussy et al.—p. 458.
Classification and Treatment of Diseased Lymph Glands. H. Fox.—p. 463.
*Abdominal Pneumatosis. P. Masson.—p. 470.
Dermoid and Teratoid Ovarian Cysts. Marques dos Santos.—p. 484.
Paratyphoid in Switzerland. W. Silberschmidt.—p. 489.
Ascending Inflammation and Sclerosis of Organs. M. Roch.—p. 496.
Two-Stage Prostatectomy. C. Perrier.—p. 500.
An Osteoid Sarcoma of the Scapula. Montant and Gloor.—p. 502.
Relations Between the Destructive and the Fibroid Forms of Tuberculosis. F. Cardis.—p. 506.
Nature and Treatment of Genu Valgum and Genu Varum. A. Jentzer.—p. 512.
Biology of Tubercle Bacilli in Vivo Versus in Vitro. Grasset.—p. 520.
Appendix Packed with Colloid Grains. E. C. Megevand.—p. 525.
Paradoxic Embolism. J. J. Mozer.—p. 532.
Cultivation of Tissues Outside the Organism. A. Grumbach.—p. 537.

Serial Histologic Examination of Irradiated Cancers.—Roussy and his collaborators make a practice of microscopic examination of a scrap of the tumor before and at fifteen to twenty day intervals after roentgen-ray treatment, as also at six to eight day intervals after radium treatment. By this serial biopsy the modifications in the epitheliomatous elements and in the surrounding connective tissue stroma can be estimated for the prognosis and as guide to such treatment in general. Two cases of uterine cancer are described in detail to show the difference in the findings at the serial biopsies as one woman recovered completely while the malignant disease progressed in the other. The intervals specified are selected to show the maximum effect of the rays.

Gas Cysts in the Abdomen.—Masson suggests the theory that prolonged resorption of lactic or other acid by the bowel mucosa, and penetration of the resorbed gas into the lacteals, with release of carbon dioxid, would explain the formation of gas cysts in the lymphatics. When the circulation in the intestinal lymphatic involved becomes arrested, spontaneously or from the changes induced by a laparotomy, the gas disappears and the cyst collapses.

Schweizerische medizinische Wochenschrift, Basel

55: 661-680 (July 16) 1925

Silver Therapy. K. von Neergaard.—p. 661.
The Interstitial Cells of the Testis. R. Schweizer.—p. 665.
*Iodized Salt and Milk Secretion. O. Stiner.—p. 670.
Case of Tertiary Syphilis of the Thyroid. Groedel and Hubert.—p. 674.

Iodized Salt and Milk Secretion.—Cows which had been fed with iodized sodium chlorid instead of with plain sodium chlorid secreted more milk and of better quality (more fat and more ash) than the control cows. The output of iodin in their milk was not increased. The iodin in plants is better utilized by the cow than the artificially administered iodin which latter is to a large proportion excreted in the feces and urine.

Archivio Italiano di Chirurgia, Bologna

11: 333-444 (May) 1925

*Cholecysto-Ureteroneostomy. E. B. Lay.—p. 333.
Inflammatory Submaxillary Process. G. Carisi.—p. 360.
*Tuberculous Process in Hernial Sac. L. Pizzagalli.—p. 373.
*Paratyphoid Osteitis. G. Ceccarelli.—p. 395.
Simplified Technic for Blood Transfusion. A. Biancheri.—p. 413.
*Relation Betwen Tuberculosis and Local Lesions. Polettini.—p. 431.

Bladder Made from Gallbladder.—Bussa Lay implanted the right ureter in the gallbladder for partial diversion of the urine in five monkeys. All survived, free from any apparent disturbances of any kind. Three to five months later he removed the left kidney, but the animals soon died in uremic coma.

Tuberculosis in the Hernial Sac.—Pizzagalli describes two cases, both in young men. Each had tuberculous glands or pleuritis.

Subacute Paratyphoid Osteitis of the Femur.—The assumed coxitis developed suddenly in the boy after the family passed through a brief febrile disease diagnosed as influenza. Exploratory puncture in the circumscribed bone focus, near the trochanter, disclosed virulent paratyphoid B bacilli. The roentgenograms suggested either a sarcoma, except that the cavity showed uniformly clear with sharp outlines, a cyst, or a focus of osteomyelitis. Ceccarelli aspirated 20 c.c. of blood and pus through a lumbar-puncture needle, and the process promptly retrogressed and healed. The femur seemed to be quite normal eight months later. Light traction had been applied to the thigh after the evacuation.

Relations Between Tuberculosis and Local Lesions.—Among the results of Polettini's experiments was the constant development of metastases in the lungs of rabbits, from tuberculous processes in the kidneys, when a little plaster of Paris was injected into the trachea. On the other hand, lesions induced in joints or elsewhere never were followed by metastasis in them from tuberculous processes in the lungs.

Pediatria, Naples

33: 681-736 (July 1) 1925

*Nervous Complications of Varicella. P. Galli.—p. 681.
*Autohemotherapy in Eczema. A. Mazzeo.—p. 700.
Uric Acid and Creatinin in Children's Blood. G. de Toni.—p. 707.
Has Yohimbin Galactogogue Action? G. Cartia.—p. 715.
*Scurvy. C. Pestalozza.—p. 718.
Child with Congenital Ophthalmoplegia and Multiple Dystrophia. V. Tripputi.—p. 722.

Nervous Complications of Varicella.—Galli has encountered two cases of acute cerebellar ataxia in the course of chickenpox. The two children, aged 2 and 5, were brother and sister. previously healthy, and the severe nervous symptoms subsided in two weeks without leaving any appreciable traces. He reviews the field of the rare manifestations in the nervous system of toxic action from the varicella virus.

Autohemotherapy in Eczema of the Exudative Diathesis.—Mazzeo reports nine of fifteen young infants completely cured of their extensive and itching seborrheic eczema, and two notably improved. He generally injected 2 c.c. of own blood intramuscularly. The pruritus usually disappeared after the first injection, and the eczema began to dry up after the third. The blood was reinjected at once, without any manipulations, and the procedure was repeated on alternate days. All other treatment was suspended.

Hematuria in Scurvy.—The child had been breast fed until 6 months old. Signs of scurvy developed at the ninth month, and at the tenth month there was profuse hematuria. None of the clinicians consulted had thought of scurvy as the possible explanation of the symptoms, but the diagnosis was unmistakable as all the symptoms subsided at once on a change to a vitamin-rich diet.

Pediatria Archivio, Naples

1: 1-124, 1925

*The Etiology of Scarlet Fever. Di Cristina and Caronia.—p. 3.
Plurality of the Antigens in the Wassermann Test in Congenital Syphilis. D. Caffarena.—p. 78.
Variability of Strains of Typhoid Bacilli. M. Gerbasi.—p. 101.

Etiology of Scarlet Fever.—In this profusely illustrated monograph, Di Cristina and Caronia present their full evidence as to the filtrable virus to which they ascribe a notable influence in the etiology of scarlet fever. They regard the streptococcus as important only as all associated microorganisms are important, or as influencing the course of the disease. Eight pages of recent international bibliography are appended.

Policlinico, Rome

32: 899-932 (June 29) 1925

*Taste and Smell During Neo-Arsphenamin Treatment. G. Donato.—p. 899.
Improved Suture Technic. V. Ghiron.—p. 906.
"Aplasia of Hepatic Vein." P. Basti.—p. 907.

Taste and Smell Anomalies During Neo-Arsphenamin Treatment.—Donato states that in his investigation of 317 patients taking arsenical treatments, nearly all testified to a taste or smell of ether or garlic. It was transient usually, and his experience indicates that when these sensations persist, it is a sign warning of intolerance of the drug. It seems to be impossible to modify this paresthesia with the usual drugs; epinephrin alone reduced the intensity somewhat.

32: 1005-1039 (July 20) 1925

*Closed Plaster Treatment of Open Tuberculous Joints. M. Benci.—p. 1005.
Iodin Treatment of Tuberculous Peritonitis. E. Sartorelli.—p. 1009.
Present Status of Bismuth in Treatment of Syphilis. Giorgi.—p. 1012.

The Solieri Method of Treating Tuberculous Joints.—Benci describes five typical cases which he thinks testify to the advantages of Solieri's method in certain cases of tuberculous bone and joint processes with fistulas. After clearing out and disinfecting the fistula, a closed plaster case is applied, closing in the fistulas completely. The cast is not changed except as it becomes too soft. He says that the process heals more rapidly than under other technics. There can be no contamination from without, and the walled-in pus may serve as an autoserotherapy. The only drawback, he says, may be the odor of the stagnating pus. Eczema did not develop in his cases: At most the skin was red.

32: 317-364 (July 1) 1925. Medical Section

Mechanism of Insulin Hypoglycemia. L. Condorelli.—p. 317.
*Action of Thyroid Extract on Fetus. G. Pighini.—p. 334.
The Blood During Irradiation of Thyroid and Pituitary. Meo-Colombo.—p. 337.
Creatinin and Uric Acid in Urine During Fatigue. Palmieri.—p. 356.

Action of Thyroid Extract on the Fetus.—Pighini relates that a toxic action was evident in rabbits, guinea-pigs and dogs, the more intense the younger the fetus. Death of the fetus is followed by its expulsion from the uterus. The heart and pancreas become enlarged in experimental hyperthyroidism.

32: 269-320 (June 15) 1925. Surgical Section

*The Gastric Chemistry After Gastro-Enterostomy. M. Ascoli.—p. 269.
*The Hemoclastic Crisis in Surgery. O. Cignozzi.—p. 282.
Torsion of the Spermatic Cord. A. Odasso.—p. 290.
Muscle Transplants. G. Petta.—p. 303.

The Chemistry of the Stomach After Gastro-Enterostomy.—Ascoli tabulates the findings in twenty-seven cases. He was impressed with the lack of uniformity, even in the individual cases.

The Hemoclastic Crisis in Surgery.—Cignozzi warns that in certain rare cases extravasation of blood induces direct hemolysis. By detecting this individual tendency to an autohematogenous hemoclastic crisis, the surgeon is aided in both diagnosis and prognosis. By strict exclusion of accumulation of blood and by injection of substances to promote coagulation, the tendency can be combated.

32: 321-372 (July 15) 1925. Surgical Section

Mucoid Ovarian Cysts and Complications. O. Cignozzi.—p. 321.
Tendon Sheath as Factor in Healing. Dominici.—p. 361.
*Simple Ulcer in Small Intestine. F. Pesce.—p. 367.

Simple Ulcer of the Small Intestine.—Pesce adds two new cases to the twenty-two he has found on record of a simple ulcer below the duodenum or gastro-enterostomy loop. In most of the cases the perforation had not been preceded by appreciable symptoms. In twenty of the total cases the ulcer was solitary. In nineteen cases it was in the ileum.

Riforma Medica, Naples

41: 481-504 (May 25) 1925

*Suppurative Arthritis. D. Taddei.—p. 481.
Meat in Diet of Diabetics. C. Farmachidis.—p. 484.
Three Cases of Hemimelia. P. Alonzo.—p. 487.
Acute Necrosis of the Pancreas After Contusion. Arrigoni and Fucci.—p. 489.
*The Hypoglycemia Syndrome. M. Cayrel.—p. 493.

Suppurative Arthritis.—Taddei describes some cases to illustrate the evil effects of trying to get along without resection in these cases. Early primary resection, aseptic medication and early discarding of drainage form the logical and the most economical treatment.

The Hypoglycemia Syndrome.—Cayrel recalls that insulin has revealed this previously unrecognized clinical syndrome. It may be encountered in prolonged fatigue and in intoxication; in nervous affections and in dyspepsia, as well as after insulin treatment. He summarizes the work of Seale Harris and other Americans, and comments on the enormous complexity of the new problems connected with hypoglycemia.

41: 577-600 (June 22) 1925

Sedimentation in Pulmonary Tuberculosis. Olivero.—p. 577.
Some Pigmentation Anomalies. S. Vacchelli.—p. 578.
Ponndorf's Vaccination in Pulmonary Tuberculosis. Marcovich.—p. 580.
*Biochemical Import of Freckles. B. Coglievina.—p. 581.
Present Conception of the Pancreas Theory of Diabetes. Laura.—p. 582.

Biologic Importance of Freckles.—Coglievina's research showed a surprising coincidence between the location of the freckles and of the points representing the thermic sense in the skin. The freckle may be a biologic defensive process to protect the nerve terminal, at a specially vulnerable point, by an extra pigmentation.

Revista Española de Medicina y Cirugía, Barcelona

8: 311-374 (June) 1925

The Fight Against Tuberculosis. F. Soler Garde.—p. 311.
*Treatment of Frontal Sinusitis. Ricardo Botey.—p. 322.
Complications of Attempts to Induce Abortion. Proubasta.—p. 330.
Vaccination Against Diphtheria. P. Farreras.—p. 334.

Frontal Sinusitis.—Botey remarks that in acute cases treatment should be restricted to sedatives and combating the inflammation. In extreme cases, intervention should be merely opening a frontal or orbital abscess and catheterizing the frontal sinus. No operation should be attempted on the frontal sinus until after roentgen-ray examination. Chronic frontal sinusitis should always be treated surgically, removing the middle turbinate as the first step, with all the ethmoidal cells. Two or three weeks later the nasal frontal passage should be dilated and the cavity effectually rinsed out. There is no perfect mode of access to the frontal sinus; all expose to complications and recurrence. His own technic clears out the ethmoidal cells, opens the sinus in the inner inferior portion of its anterior wall, and allows complete evacuation, without disfigurement. The extranasal route should not be used until after failure of the nasal.

Revista Española de Obstet. y Ginecología, Madrid

10: 193-240 (May) 1925

*Uremia with Convulsions During Pregnancy. P. Nubiola.—p. 193.
*Syphilis in Parturients. V. Marqués Bertrán and J. Muñoz Arbat.—p. 201.

Uremia with Convulsions in Pregnancy.—Nubiola discusses the points for differential diagnosis between uremia and eclampsia in pregnant women. Eclampsia is more probable when the convulsions occur in the last three months of the pregnancy or during or following delivery, with a history of other symptoms of toxicosis noted before the convulsions, oliguria; retention of nitrogen; hyperchloriduria with albuminuria but no tube casts or kidney elements in the urine, and hypertension. There have been a large number of cases of eclampsia this year at Barcelona. In one case there were twelve attacks of convulsions in the third day of the physiologic puerperium, with absolutely normal findings until just before the first attack. In another case of convulsions during the fifth month, he diagnosed uremia with convulsions.

Syphilis in Parturients.—In the 303 parturients at the Barcelona Maternity syphilis was found in sixteen. Among the syphilitic women, 23 per cent. had had abortions before this. The fetal mortality in the untreated was 83 per cent. In all the cases of congenital syphilis in the new-born, the mothers were invariably syphilitic, but 46 per cent. were unaware of their infection. The most constant visible sign of syphilitic infection of the placenta is the discoloration. The Wassermann test was negative in 8 per cent. of the certainly syphilitic women.

Revista Esp. de Urología y Dermatología, Madrid

27: 169-224 (April) 1925

*Prostatic Obstruction. C. Sala Parés and M. Pañella Casas.—p. 169.
Ultraviolet Rays in Treatment of Alopecia. J. M. de Bárcena Verdú.—p. 179.

Roentgen-Ray Treatment of Hypertrophied Prostate.—Sala Parés and Pañella Casas state on the basis of fifteen cases that the retrogression of the hypertrophy can be confidently expected under deep roentgen-ray treatment in cases of pure adenoma. The benefit is most rapid and pronounced the more recent the onset. They use two suprapubic fields, one at the perineum and two at the coccyx. If this treatment fails, it does not interfere with application of other measures.

Revista Mexicana de Biología, Mexico City

5: 313-358 (May) 1925

Improved Technic for Counting Bacteria. F. Medina.—p. 313.
*Pathologic Anatomy of Scorpion Poisoning. F. Ocaranza.—p. 321.
Physiologic Changes in the Blood During the Menstrual Cycle. E. Ramírez.—p. 332.
Three Mexican Species of Acarideans. M. Sellnick.—p. 346.

Scorpion Poisoning.—Ocaranza reproduces eleven photomicrographs of the findings in the guinea-pig and the rat after a scorpion sting. The kidneys and liver seem to suffer most. At some points the glomeruli seemed entirely destroyed.

Revista de la Soc. Arg. de Urol., Buenos Aires

1: 27-45 (May) 1925

*Cystoscopic Signs of Renal Tuberculosis. L E. Pagliere—p. 27.
*Stenosis of the Bulbar Urethra. J Salleras.—p. 30.
Case of Enormous Congenital Dilatation of the Urinary Passages. Astraldi and Tobias.—p. 38.
Case of Bifurcation of Right Ureter. Quintana et al.—p. 42.

Cystoscopic Signs of Renal Tuberculosis.—Pagliere states that in old renal tuberculosis the mouth of the ureter on that side follows the movement of the diaphragm in deep breathing. This sign is important, both in diagnosis and in locating the tuberculous process. The mouth of the ureter on this side may be higher than that of the sound side. This sign may be lacking when the tuberculosis of the kidney is of recent date, and the ureter is not inflamed, or when the kidney is much enlarged and has sagged. He has noted this sign with tuberculous processes in either the right or the left kidney.

Stenosis of the Bulbar Urethra.—Salleras sutures at once after operating on an impermeable stenosis of the bulbar urethra, except when there are acute periurethral infectious processes or in acute exacerbations of chronic disease. If necessary, he concludes with a plastic operation. In two cases of old gonorrhea, he sutured the perineum after external urethrotomy, leaving a drain for forty-eight hours. In the urethra, an olive-tipped bougie was left as a model for repair. Among thirty patients treated with perineorrhaphy, only one developed a fistula.

Semana Médica, Buenos Aires

1: 1257-1312 (June 11) 1925

Experimental Intravenous Use of Colloidal Bismuth. D'Amato—p. 1257.
Colloidal Metals in Acute Pulmonary Processes. A. F. Camauer.—p. 1265.
The Rheumatismal Origin of Cortical Pleuritis. J. R. Goyena.—p. 1267.
Pneumonia and Appendicitis in Children. E. Pozzo.—p. 1267.
*Hemorrhagic Polyps of the Verumontanum. J. Salleras.—p. 1269.
Posterior Urethroscopy. Ubaldo Isnardi.—p. 1270.
Physical Examination of School Children. T. A. Tonina.—p. 1271.
Spastic Retention of the Placenta. Bazzano—p. 1286.

Electrocoagulation for Bleeding Polyps of the Verumontanum.—Salleras reports two cases in which the hemorrhages seemed to be connected with sexual abuse, without preceding urethritis. The electrocoagulation gave excellent results. Only one or two sittings were required. There has been no recurrence in either case.

Siglo Médico, Madrid

75: 525-548 (May 23) 1925

*Some Eugenic Problems. E. Fernández Sanz.—p. 525.
Malarial Anemia in a Hemophiliac. G. R. Gonzalo.—p. 530.
Otitic Abscess in the Brain. Carrasco.—p. 531.
Recovery from Tetanus Under Large Doses of Antiserum. E. Segoviano.—p. 532.

Eugenics and the Sexual Problem.—Fernández Sanz presents arguments to sustain his contention that the progress of mankind and of eugenics demands strict demarcation between the male and female types, and the evolution of each to maintain and accentuate the differences between the sexes. Everything should be avoided, he says, that tends to reduce or confuse these differences.

Archiv für Verdauungskrankheiten, Berlin

35: 115-266 (June) 1925

*The p_H of the Stomach Contents with Duodenal Ulcer. Kauftheil and Porges.—p. 115.
Postoperative Gastrocolonic Fistula. L. Nelken.—p. 143.
Medicinal Treatment of Apepsia. Winogradow et al.—p. 151.
*Pepsin Inhibiting by the Blood Serum. Hirsch-Mamroth.—p. 174.
Endocrine Glands and Intestinal Tract. F. Boenheim.—p. 186. Contd.
Chronic Gastritis. R. Korbsch.—p. 210.
*Influence of Tobacco on the Stomach. F. Lickint.—p. 230.
Examination of Stomach Contents. Schwarz and Seldina.—p. 248.

The p_H in the Stomach Contents.—The true acidity of the stomach contents can be determined by titration for free hydrochloric acid and the total acidity. Kauftheil and Porges found that in duodenal ulcers the true acidity is considerably above the normal value. In gastric ulcers they found normal or subnormal values.

A Pepsin-Inhibiting Action of the Blood Serum.—Hirsch-Mamroth examined twenty-one patients with gastric or duodenal ulcers for the antipeptic value of their blood serum. This action was not uniformly weaker in these patients than in the fifty control cases, but it was found that in all cases of radical resection of the ulcer the antipeptic value increased. A new and simple method for the test is described in the paper.

The Influence of Tobacco on the Stomach.—A careful analysis of the literature concerning clinical and experimental observations and his own experimental work on the influence of tobacco on the ferment activity of digestive secretions, lead Lickint to the following conclusions: Nicotin decreases the action of pepsin and of rennet. Potassium sulphocyanate, found in excess in the saliva of smokers, has an inhibiting effect on protein digestion. In chronic smokers, the peristalsis is first increased, later decreased. Lickint believes that tobacco may play an etiologic rôle in neuroses of the stomach, in disturbances of its secretory function, in gastritis, and even in ulcer and cancer.

Beiträge zur klinischen Chirurgie, Berlin

133: 533-688, 1925

*The Complete Removal of the Thyroid. P. Sudeck.—p. 533.
*Surgical Dieases of the Pancreas. A. Schlegel.—p. 562.
*Blood Supply After Strumectomy. H. Geiger.—p. 583.
*Healing of Veins. O. Pollwein.—p. 607.
Fractures of the Pelvis. H. Günzler.—p. 617.
*Cancers of the Sinuses. W. Klestadt and H. Martenstein.—p. 626.
A Cavernous Hemangioma of the Small Intestine. F. Landois.—p. 685.

Complete Removal of the Thyroid.—Sudeck discusses the reasons for the complete removal of the thyroid in cases of cancer and in selected cases of exophthalmic goiter, when it is imperative to prevent any further toxic effect on the heart, and when myxedematous symptoms are present. In cancer, it is his method of choice. He believes that tetany can always be prevented. Thyroid preparations by the mouth are always sufficient to prevent symptoms of thyroid deficiency.

Surgical Diseases of the Pancreas.—Schlegel divides these diseases in three groups: first, the cases of acute necrosis which is caused either by bile entering into the pancreatic duct, owing to stones in the papilla, for example, and activating the pancreatic ferment, which leads to a digestion of the pancreas; or by hemorrhages due to arteriosclerotic processes or stasis (pressure by a tuberculous lymph node in one case), or to septic diseases. The second group comprises cases in which no parenchymatous changes are found, but necrosis of peripancreatic fat tissue; Schlegel advocates the name pancreatosis for this group. Another type of cases belongs to this group, too; here one finds an extremely hard, tumor-like pancreas; the patient complains of colicky pain and has usually a normal temperature. The pancreas does not show any histologic changes. Inflammatory processes of the pancreas, pancreatitis, make up the third group. Schlegel emphasizes the intimate relations between the gallbladder and the pancreas.

The Blood Supply in the Thyroid After Goiter Operations.—Geiger has found that after ligation of the four arteries, collaterals are formed by the vessels in front and back of the thyroid. After ligation and resection, the retroglandular arteries predominantly take care of the blood supply.

Zentralblatt für Chirurgie, Leipzig

52: 1585-1632 (July 18) 1925

Avoidance of Anesthetic Fumes in Operating Room. Kelling.—p. 1586.
"Bone Suture." R. Demel.—p. 1587..
*Plastic Operation for Hernias. H. Fowelin.—p. 1590.
*Tenesmus in Inoperable Cancer of the Rectum. G. Hook.—p. 1591.
*Ileus in Starvation. I. Faehrmann.—p. 1594.
Resection of 2 Meters of the Small Intestine. Flosdorf.—p. 1597.
Rupture of the Urethra in Motorcycle Concussion. Frankenthal.—p. 1598.

Plastic Operation in Large Hernias.—Fowelin recommends to use the hernial sac as a pad to cover the dilated inguinal ring; then to close—according to Bassini's method—the fascia, muscle, and skin over it.

Relief of Tenesmus with Cancer of the Rectum.—The usual procedure in inoperable rectal cancer is the formation of an artificial anus, with complete functional exclusion of the peripheral portion of the bowel. But even after this operation, patients frequently suffer from painful tenesmus due to irritation by fecal matter and pathologic secretions which are not completely voided through the artificial anus. Hook made in such cases an artificial fistula into the rectum after removal of the coccygeal vertebrae. This resulted in the immediate and complete relief of pain and tenesmus.

Ileus in Starvation.—Faehrmann observed two cases of subacute ileus in very emaciated women. The pathogenesis is explained by the fact that in these cases the omentum has lost all of its fat tissue and consists of scarcely more than a network of blood vessels. The exaggerated motor functioning of the bowel causes intestinal loops to slide into the openings in the omentum. The pressure of these loops on the omental vessels results in fibrous obliteration and shriveling, and subsequently in slow and progressive strangulation of the intestine.

Zentralblatt für Gynäkologie, Leipzig

49: 1585-1632 (July 18) 1925

Interstitial Pregnancy. R. Zimmermann.—p. 1607.
*Salt Metabolism in the Placenta. K. von Oettingen.—p. 1614.
Hegar's Sign of Pregnancy. L. Piskacek.—p. 1622.
Anaerobic Infection, Simulating Tetanus, After Abortion. E. Volcker.—p. 1625.
Neurofibroma of Right Major Labium. S. Maczewski.—p. 1629.

Salts in Maternal and Fetal Blood.—Under normal conditions, the fetal blood obtained from the umbilical cord contains about 4.5 per cent. more chlorids than the simultaneously drawn maternal blood. The average phosphate content in the fetal blood is 5.33 mg., as compared to 3.51 mg. in the maternal blood; the creatinin does not show any significant differences. The fact that the umbilical cord blood has a higher concentration of crystalloids (potassium, sodium and amino-acids, too, are found in larger amounts in cord blood than in the maternal blood), leads Oettingen to believe that the exchange between the fetal and maternal circulation is not a mere osmotic process, but that the placental tissue must have some kind of active secretory function.

Zentralblatt für innere Medizin, Leipzig

46: 673-688 (July 18) 1925

*Sclerosis of the Portal Vein. F. Wohlwill.—p. 673.

Sclerosis of the Portal Vein.—Wohlwill reports his pathologic anatomic studies on fifteen cases. He emphasizes that the frequently used term "thrombophlebitic tumor of the spleen" is incorrect, because there is no inflammatory process in the portal vein; thrombi may not be present at all and, if they are, they are secondary to the atheromatous changes. In the spleen is found an increase of fibrous tissue, and the histologic picture differs only quantitatively, if at all, from the Banti spleen. In ten cases he found iron deposits in the fibrous tissue and in the vessel walls of the spleen. This iron is not hemosiderin, but occurs in long crystals. The liver may be found normal, atrophic or cirrhotic; in some cases one finds the typical picture of Laënnec's cirrhosis.

Časopís lékařů českých, Prague

64: *985-1020 (June 27)* 1925

*Aseptic Necrosis of Semilunar Bones. A. Váňa.—p. 985.
Indications for Arthroplasty and Transplantation of Omentum. J. Kňazovický.—p. 992.
Curability of Tuberculous Cavities. J. Jedlička.—p. 1007. Cont'd.

Aseptic Necrosis in Semilunar Bone.—Váňa admits the probability of congenital anomalies as described for the hip joint by Maydl and later by Legg, Calvé and Perthes. Yet the traumatic etiology seems to be the most common in aseptic necrosis of the semilunar bone. The injury causes an inflammation in the ligaments of the bone, with subsequent compression of the blood vessels by the edema. The cartilage of the joint may also be injured directly.

Prophylaktitcheskaia Medicina, Charkoff

4: 1-164 (May) 1925. Partial Index

*Agar in Immunization Procedures. Minkevitch and Zukerman.—p. 17.
Intensification of Antirabic Vaccine. S. Kotsevaloff.—p. 27.
Neo-Arsphenamin in Prophylaxis of Syphilis. L. Volpian.—p. 96.

Agar Vehicle Enhances Action of Antigens.—Using agar as the medium, Minkevitch and Zukerman injected subcutaneously eosin, trypan blue, potassium iodid, strychnin nitrate and tetanus toxin in mice, rabbits and frogs. It appeared that with the agar the substances were resorbed more slowly but more completely, and their elimination was continued longer. The same phenomenon was noted in passive immunization by diphtheria antitoxin and in active immunization by vaccines with the agar as the vehicle. Evidently a retarded resorption may render the immunization against reinfection more effectual and more durable. They refer further to Dochez's experiments with agar-cultures of the scarlet fever hemolytic streptococcus.

Acta Ophthalmologica, Copenhagen

2: *199-310, 1924*

*Glaucoma Pressure Curves. S. Hagen.—p. 199.
The Iris and Ciliary Body as Factors in Glaucoma. B. Malling.—p. 213.
Pseudoglioma. H. Thomsen.—p. 218.
Idiopathic Hemeralopia. C. Edmund.—p. 225.
Research on Adaptation. H. Frandsen.—p. 239.
*Eye Complications in Diabetes. C. L. Andersen.—p. 250.
Calf Cartilage as Support for Artificial Eye. O. Dymling.—p. 257.
Avulsion of Optic Nerve. O. Dymling.—p. 263.
Influence of Vitreous Body on Bacterial Growth. Cronstedt.—p. 267.
Theorem Relative to Catadioptric Images. H. Gertz.—p. 275.
Cephalocele of Orbit Cured by Operation. R. Aulamo.—p. 286.
Pits on the Optic Disc. J. Nielsen.—p. 291.

Glaucoma Pressure Curves.—Hagen analyzes sixty-two cases of simple glaucoma, five of inflammatory, and eleven of secondary glaucoma. The intra-ocular pressure was determined twice a day, which proved valuable for the early diagnosis, and as a guide when and how to operate.

Eye Complications in Diabetes.—Andersen examined the eyes of 292 diabetics and found only 25 per cent. with ocular affections traceable to the diabetes. In this group of eighty-two cases, cataract formed only 16 per cent., while retinal affections totaled 52.4 per cent.; opacity in the vitreous body, 8.5 per cent., and transitory refraction errors, 14.6 per cent.

Finska Läkaresällskapets Handlingar, Helsingfors

67: 499-620 (June) 1925

*Metabolism and Immunity. G. von Wendt.—p. 499.
Histology of Xeroderma Pigmentosum. M. Edgren-Gylling.—p. 542.
*Tuberculosis in One Finland District. M. Savolin.—p. 556.
Chronic Appendicitis Without Acute Attacks. H. Bardy.—p. 562.

Metabolism and Immunity.—Von Wendt summarizes the present conceptions of the basic principles of metabolism, discussing in particular the reticulo-endothelium-lymph gland apparatus and the importance of measures to stimulate its local or general action to promote or modify the metabolism. The age-long benefit from revulsion is due to this apparatus, and he thinks greater use should be made of such measures as an adjuvant to drug treatment. He refers in particular to sanocrysin, saying that physical measures applied to the skin in the region of the focus might prepare the region for a more effectual action of the drug.

Tuberculosis in One Finland District.—Nearly 13,000 of the 16,000 inhabitants of the Borgå district were tested for tuberculosis, with positive findings in 2.32 per cent. but the tuberculous lesions had healed in a large proportion. The death rate from tuberculosis was 22.68 for each 10,000 inhabitants.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 85, No. 11 CHICAGO, ILLINOIS SEPTEMBER 12, 1925

THE UNKNOWN DETERMINING FACTORS IN DISEASES OF THE NERVOUS SYSTEM *

EDWIN G. ZABRISKIE, M.D.
NEW YORK

Our knowledge of the etiology and the pathogenesis of disease processes is steadily advancing, thanks to the constant accessions of new workers in laboratories throughout the world; and tremendous strides are being constantly made in the advancement of our knowledge of the physical and chemical forces at work in living organisms. As the questions about which fierce controversies raged—it seems only a few years ago—are answered, other questions present themselves with a new significance, in an entirely different light, are just as puzzling, demand even greater concentration of thought, and appear to hold out the same elusive will-o'-the-wisp promise of solution that formerly mocked us in problems which at present no longer exist.

It seems only a short while ago when arguments pro and con were being hurled back and forth over the possibility of tabes and paresis without syphilis. When Erb, Fournier and a few others fought with almost fanatical zeal, it seemed against a world of doubters, timid conservatives and controversial opponents, for the dictum that without syphilis one could not have tabes or paresis. Yet who today, since the Wassermann reaction has given positive proof of this statement, ventures to question its validity? We now think in terms of neurosyphilis, we speak of its various subdivisions, and our primary therapeutic attack is against *Spirochaeta pallida*. All else in the plan of therapy is secondary and is either supportive or corrective. We have now turned to the problems of why only a certain percentage of those exposed develop neurosyphilis, whether or not there are different strains of the spirochete which cause neurotropic or dermotropic lesions according to the strain; why neurosyphilitic lesions usually appear so long after a primary infection, or why a definite percentage of those carrying spirochetes from the prenatal state fail to pass the stormy period of adolescence without destructive lesions of the nervous system.

In like manner, most of the types of pyogenic or virus infections of the central nervous system and its envelops have been identified, and are quite firmly established either clinically or by the micro-organism. We now distinguish confidently between virus infections and bacterial infections, thanks to the splendid work of the bacteriologic and immunologic laboratories. Our plan of therapy is rapidly determined for us by the laboratory examination, and our success in this field alone more than justifies all the energy, time and thought that have been expended. We may feel a degree of confidence in treating certain of the forms of meningeal infections, and we may be just as helpless as ever, when confronted with other forms; but at least we know our power and our limitations much better than ever before. On the other hand, the fear of epidemic outbreaks is always with us, and in our constantly increasing massed population among all the overcrowded living conditions this implies, the danger appears increasingly greater. To be sure, we have learned a great deal about the modes of transmission of these organisms or viruses, and the importance of contacts, but still the questions remain unanswered why mere exposure alone is in most instances insufficient to produce the disease; why in the midst of a house full of persons only a few are stricken; why certain districts isolated practically from the rest of the world are attacked; why certain of the virus infections are at times epidemic and at other times pandemic; or why certain individuals may withstand a local infection successfully until subjected to some other influence and then succumb to a generalized invasion of the same organism which becomes fulminating in its virulence.

An epidemic of poliomyelitis in one of the Swiss children's hospitals, occurring a short time ago, illustrates quite well my meaning. Here several cases in different wards appeared spontaneously. Only a comparatively small number of children, i. e., two or three in each room, developed the disease. The beds were so situated that direct contact from patient to patient was out of the question; the utensils and clothing were cared for in a perfectly competent manner, and after the first case developed, proper quarantine measures of the strictest sort were established and maintained. Suspicion finally centered on one nurse, and it was definitely established that in one capacity or another she had actually handled each of the children affected, although she had handled many more who developed no symptoms at all.

Assuming, then, and the evidence is fairly conclusive in this respect, that this particular nurse was the actual carrier of the virus, we are confronted with the fact that although many children of different ages in separate wards came in contact with the carrier, only a relatively small number contracted the disease. It is of further significance that all the children who contracted the disease were under treatment for conditions of the most dissimilar nature, which could not be classified in a definite group or groups.

The occurrence of epidemic encephalitis is also subject to certain determining factors, the nature of which is still obscure. Even the so-called microbic etiologic agent is unknown, and although its epidemic incidence leaves little doubt of the existence of such an agent, and while the consensus of opinion is for the separation of encephalitis from influenza, or, in other words, that these diseases are caused by different micro-organisms, one must recall that until quite recently one was regarded as a sequel of the other. Furthermore, the significance of the appearance of practically a new disease, following closely in the wake of one of the most devastating influenza pandemics the world has ever seen, is too important to be ignored. The history of encephalitis preceded, not immediately, but some time before, by an attack of influenza, or what at the time was considered to be mild grip infection, differing from an ordinary cold principally in the degree of prostration following recovery, is altogether too frequent to be of no importance, and, as Flexner says, "Whether an attack of the first acts to predispose to an attack of the second in the manner of the predisposing effect of influenza on bacterial affections of the respiratory tract is a question awaiting close study."

---

* Chairman's address, read before the Section on Nervous and Mental Diseases at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

PYOGENIC INFECTIONS

The pyogenic infections of the central nervous system, at least in many instances, appear to present the same problems of determination, and here again we find the human organism capable of withstanding or holding in check the onslaught of the attacking forces until a new factor appears, the resistance breaks down, and the host is overwhelmed.

An illustration of this was the case of a middle aged man who underwent a radical mastoid operation. Not only the mastoid was affected but the labyrinth as well, and the operator was in doubt about interfering with this complicated organ for reasons that are obvious. It was decided to leave it alone, and results seemed to justify this decision, because he made a good recovery. That is to say, he recovered from the operation, the wound healed, and although the discharge from the ear continued—the result, of course, of granulations in its labyrinth—this steadily diminished in amount and the signs of labyrinth irritation became less annoying. He continued to progress in a satisfactory manner for eight months, at the expiration of which he acquired a mild so-called grip lasting only a few days. Four or five days after this, without any recognizable premonitory warning, he was seized in the middle of the night with a violent headache. The following day he lapsed rapidly into a comatose state with all the signs of acute meningitis, and within twenty-four hours he had succumbed to a virulent septic meningitis.

Another case is that of a boy, aged 17, who submitted to a submucous resection of the septum. The field of operation was unfortunately infected, and during his stay in the hospital he suddenly developed intense frontal headache, vomiting, photophobia and moderate papilledema. Of course, brain abscess was suspected from the first, but during the course of observation all signs gradually disappeared and he was discharged cured. It was thought that the first suspicion had been incorrect and that a localized serous meningitis was the cause of the condition. However, exactly one year from the date of these signs, he ate a large quantity of indigestible food, went to bed, and awoke in the middle of the night with violent frontal headache, and soon after began to vomit. Within twelve hours he became unconscious and died after forty-eight hours of almost continuously succeeding convulsions. The necropsy disclosed an abscess the size of a cherry situated in the right frontal lobe containing thick dark yellow pus. It had not ruptured, although the capsule was very thin, but the surrounding brain tissue for at least 4 cm. in all directions was the seat of an intense hemorrhagic inflammation, and both frontal lobes showed an intense hemorrhagic septomeningitis.

Instances similar to these two cases might be multiplied many times over, but they serve quite well to illustrate the fact that the human body may act as host to pathogenic micro-organisms for a long period of time without apparently affecting the health of the patient until some new element appears to overthrow what might be called the resistance equilibrium. After this has occurred, resistance rapidly breaks down, and the invading bacteria overwhelm their victim.

CHRONIC INTOXICATIONS OF NONINFECTIOUS ORIGIN

If one turns to chronic intoxications of noninfectious origin, an interesting condition is met in the fact that alcoholism of the chronic type rarely, if ever, assumes the form of acute intoxication of the nervous system, whether it be central or peripheral, without an additional factor. In other words, a long period of steady consumption of alcohol is of itself incapable of causing acute delirium or polyneuritis. As Bumke, in Lewandowsky's Hand Book, says, "The explanation of why a drinker after years of excess, maybe ten years or more, suddenly is seized with delirium is not to be sought for in the pathologic changes of the brain structure." He is convinced that there are sufficient indications of a so-called intermediate poison which actually occasions the delirium, and quotes Bonhoeffer's observations on the high incidence of these psychoses during the months from March to September, which may be attributed to temperature changes, since the oxidation of alcohol takes a longer time in warmer weather than in colder. Bumke is also inclined to attribute great importance to acute infections in the development of the delirium, although neither he nor Bonhoeffer is quite clear whether they are to be regarded as complications or something of a more determining character.

Other factors may also contribute to the steadily augmenting unstable state of the chronic drinker; namely, toxins emanating from a long standing disturbance of the digestive system, or a gradually increased interference with the proper eliminating capacity of the liver, because of chronic interstitial changes in that organ. Indeed, Wagner von Jauregg believes that these factors are most significant in the determination of the delirium.

This peculiar feature is not operative merely in alcoholic deliria, but is common in the polyneuritis group as well. For instance, an emotionally unstable woman, aged 38, who had always been most temperate in her use of alcohol, began to increase her consumption immediately after the death of her husband, so that for the past three years she drank about a quart of gin between the hours of 11 p. m. and 2 a. m. She was never badly intoxicated, never drank in the day time and was always well able, not only to do her work on the stage quite capably, but managed to increase her income by writing short stories, for which she always found a willing publisher. Last summer after a fatiguing transcontinental trip, for two weeks she worked double time on the Pacific Coast and then took ship for Australia, where she was seized with an attack of influenza and had a low temperature for a few days. After an apparent recovery had set in she became confused, irritable, noisy and within a few days developed a mild delirium tremens, from which she gradually emerged in the grip of a perfectly classic alcoholic polyneuritis which affected all four extremities and all the muscles of the back. It is of interest to relate that, as she recovered, the order of recovery in all four extremities was the same. The distal portions of the limbs regained strength and tone before the proximal, especially in the lower extremities, where movements of the feet and Achilles jerks recovered more rapidly than the quadriceps extensors and the knee jerks, thus exhibiting in this respect at least a certain similarity to this well known feature of infectious radiculitis, or neuronitis, as Foster Kennedy calls it. The possibility of Australian X disease was also considered, but it was discarded for reasons that at present need not be discussed. The important facts are that this woman drank to excess for several years without limiting her mental or physical capacity until, after several weeks of excessive fatigue, a long sea voyage during which heavy drinking occurred, and a fairly severe grip infection, she suddenly exploded, as it were, with an acute alcoholic intoxication of the brain and peripheral nerves. It might also be said that, except for a rather severe colitis, no impairment of the other visceral organs could be detected.

TRAUMA

It is necessary at this point to consider trauma as a possible causative factor, not only in alcoholic intoxications of the nervous system but in other diseases of the nervous system as well, notably multiple sclerosis. Just as formerly, there is today a considerable difference of opinion in the case of alcoholic deliria, whether the evidences of head injuries so frequently found constitute the result of an already developing confusional state or occur before this has begun and therefore are to be considered as causative. There is little doubt that the latter may also be true, for the history of antecedent brawls, or fights accompanied by blows or other injuries not always on the head but frequently over the abdomen, is encountered too often to be ignored.

The anamnesis of multiple sclerosis likewise furnishes us with many instances of the rapid onset of the disease after fairly severe jarring blows to the spine, the immediate effects of which were soon recovered from.

A case in point is that of a healthy girl, aged 18, who, while attempting a difficult dive from a height of about 6 or 7 feet, made a misstep and landed flat on her back on the surface of the water. Although she was severely jarred, she felt no other ill effects until a few days later, when the first symptoms of multiple sclerosis appeared. In a short time the condition developed to an extensive degree and she became quite helpless.

There are many other instances similar to those I have enumerated which might serve to demonstrate the existence of factors which set in play pathogenic forces that have been hitherto latent in the body of man. These will serve our purpose for the present, however, and furnish more than sufficient material for a glimpse at the possible nature of these factors.

FACTORS IN LATE CONGENITAL SYPHILIS

About two years ago, I presented before this section a consideration of certain factors that might be of importance in the development of the lesions of the nervous system in late congenital syphilis. Among other possible factors, the relation of the lipoids to proteins during growth, the proportion of lipoids in nervous tissue during the early stages of medullation, variations of lipoids during disease states, and their sundry behavior during the experimental protein intoxication of Pfeiffer were discussed. Reference was made to Pfeiffer's theory that the lipoids which disappear from the suprarenal cortex during acute intoxication are mobilized in the blood for the purpose of neutralizing the proteolytic enzymes set free by the primary intoxication, and the indications of a possible connection between these two substances and syphilitic changes in the body were pointed out. The relation of the Wassermann reaction to lipoids, and the nature of Neisser's reagin, which Kolmer believes is the product of the cells of all tissues, and possesses the capacity of combining with lipoid substances, although its actual composition is still unknown, were also referred to.

In connection with this, I will refer to the interesting work of Güter, Lowenstein and Segrist, Doer and others on the properties of herpetic virus, especially their more recent researches; because they may eventually have some bearing on the situation.

Flexner indicates clearly in his article on epidemic encephalitis the striking similarity in the behavior of herpetic virus to that of encephalitis produced experimentally in certain laboratories in France and the United States. He relates Lowenstein's identification of all forms of febrile herpes as distinct from herpes zoster, and his conviction that the active material of the febrile herpetic eruption must have a wide distribution in the healthy body since it so readily accumulates and multiplies in the eruptions and the inoculability of the virus, no matter what the inciting cause, whether it be febrile disease, a drug (arsphenamin) or a foreign protein (milk injection).

Then follows the observation by Doer, somewhat later, that rabbits inoculated by the corneal route with herpetic virus frequently develop symptoms that are identical with experimentally produced encephalitis, thereby adding weight to the conviction that herpes is a generalized pathologic state and not a mere local condition.

Flexner also reports a case which is perhaps more important than anything else in the article since it indicates the possibilities of active material in the human body which without evidence of its existence is capable of producing pathologic states in animals and can be transmitted from generation to generation. The case is that of a patient treated for neurovascular and cardiovascular syphilis acquired sixteen years previously. He was under treatment at the time with mercury and arsphenamin and had had no signs or symptoms of encephalitis, or herpes of any type. The spinal fluid of this man gave a strong globulin reaction, was sterile to ordinary culture methods, and was injected intracerebrally into two rabbits, one of which died ten days later with symptoms of encephalitis. This virus, as Flexner calls it, was effective no matter how inoculated, for whether it was introduced subdurally, through the cornea, through the nares or the blood or the testes, the inoculated animal always showed symptoms of general encephalitis.

At the time of publication this strain had been carried through twelve generations of unimpaired activity, although it is interesting to note that, a month later, fluid from the same man gave reactions of a much milder type, and all the animals three months afterward were susceptible to inoculation with herpes virus. This was the only case of its kind from more than 200 fluids, more than forty of which were epidemic encephalitis cases; and although it served no particular purpose in that investigation, still one is forced to consider its value as indicative of the actual existence of active material in the human body, which, without betraying itself in any way, is capable of reproducing its effects through many generations, and which is not permanent but may lose these qualities after the expiration of a month.

One seeks the explanation of this interesting observation among several theoretical possibilities. Can the presence of arsphenamin in the cerebrospinal axis of a person with syphilis produce a lipase or similar ferment which is thrown in the spinal fluid and is capable of producing these lesions? Has a condition similar to herpes caused by arsphenamin or a split protein intoxication arisen either as a result of treatment or from the action of the syphilitic virus, producing the same active material in the fluid that is found in the vesicles of ordinary peripheral herpes? Unfortunately, there is nothing in the report of the case which might indicate this either by a violent reaction against arsphenamin during the inauguration of treatment or a later sensitization to the drug. Finally, was the fluid obtained during a phase of mild infection by some of the filtrable organisms of Olitzky and Gates, in which the severity of the infection was inhibited by the immunizing capacity of the host, by the activity of the syphilitic infection or by the presence of mercury and arsenic in the body of the host?

ELECTRODYNAMIC FORCES

The recent developments in the study of the colloids and the foundation of more exact laws governing their behavior gives promise of the solution of many problems that are still obscure. The importance of the simpler methods for the determination of hydrogen ion concentrations, the confirmation of Jacques Loeb's theory of proteins and Donan's law of equilibrium, which enabled the formulation of a mathematical expression to account for the colloidal behavior of proteins, has been recently very well summarized by Robert Loeb in an address before the New York Academy of Medicine.

From his summary of the present status of this branch of science, it at once becomes evident that the more our knowledge advances in this direction the nearer we come to an understanding of the importance of electrodynamic forces in the regulation of the phenomena of life and disease processes. Three of the most important observations bear directly on this subject. They are the studies in enzyme action by Northrop; the properties of agglutination by de Kruif and Northrop, and Shibley; and the body water balance studies by Palmer, Atchley, Loeb, Van Slyke and others. In the first instance it has been shown that the action of both pepsin and trypsin is probably an ionized protein alone and that whether the protein is in solution or precipitated makes no difference. Furthermore, that the apparent variations in its action are really governed by Donan's law of equilibrium.

The study of the stability of bacterial suspensions by de Kruif and Northrop has demonstrated the existence of two antagonistic forces called repelling and cohesive forces, and that these forces operate according to the potential of the solution and the sensitization of the bacteria. Shibley, working along the same line with streptococci, has shown that immune agglutinating serums possess a specific charge-reducing substance which is quantitatively related to the agglutination titers of the serum, and that in absorption experiments this substance is lost.

In the study of the water balance of the body, two important facts have been determined: 1. In cases of edema, an equilibrium exists between the serum and the edema fluid which in all likelihood is the same as that described by Donan. 2. In the blood, distribution of electrolytes between cells and serum can be predicted by mathematical expressions derived from three laws governing dilute solutions.

The relation of the sympathetic nervous system to these factors is still very obscure. Our present knowledge of the manner in which it regulates the various vegetative and biochemical processes and its relation to the electrodynamic forces of these phenomena barely approaches the threshold of the problem. We know that the electrical conductivity of nonmedullated fibers differs greatly from the medullated, and that electrical currents travel at a much slower rate over the former than the latter. We also know that the response obtained over the medullated fibers from skeletal muscles will fatigue much more rapidly than the responses obtained from organs supplied by the sympathetic. But whether this results from the electrolytic resistance of the cell membrane or the possible colloidal fixation of certain ions on the calcium content of the cells is still in the dark. That the sympathetic may play an important rôle in the production of substances that act as enzymes, that can influence the equilibrium of the colloidal matter or that can act in a pharmacodynamic capacity seems fairly certain of proof in the near future. At all events, the last named feature has been demonstrated by Le Heux, who first proved the stimulating effect of cholin on intestinal peristalsis and then caused the formation of cholin by stimulation of the vagus. Löwi also obtained substances through stimulation of the vagus which had a direct action on heart muscle deprived of nerve influence. It is also difficult to explain the pharmacodynamic action of posterior lobe pituitary substances when injected into the leg of an animal, after the blood supply to the part had been completely cut off, on any other basis than through the sympathetic nervous system. In like manner, the instantaneous respiratory response of a man in coma with Cheyne-Stokes respiration must be explained. This interesting phenomenon was observed in a case of epidemic (lethargic) encephalitis with marked Cheyne-Stokes breathing in which the application of carbon dioxid gas to the nasal mucous membrane during the quiet interval was instantly followed by resumption of the respiratory act in a time too short to permit the transport of the carbon dioxid molecules by the blood stream to the respiratory centers.

CONCLUSION

I have attempted to indicate the existence of a hitherto undetermined factor in certain diseases of the nervous system which in reality furnishes the means whereby the resisting capacity of the organism to pathologic forces is broken down, and the destructive power of these forces, whether focal or general, are given free rein.

All our evidence at the present time seems to point to further research in the field of electrodynamics, to which colloidal chemistry and nerve action unquestionably belong. It is the field toward which Jonathan Wright, more particularly as regards tonsil infection, has been inviting our attention for many years; and in my opinion holds the solution to many, if not all, the problems indicated in this address.

Whether the sympathetic nervous system exercises more than a conducting function or whether it has actual dynamic function in these conditions remains to be demonstrated, but I am confident that future research will prove the supreme importance of this structure in the operation of these determining factors.

37 West Fifty-Fourth Street.

HELIOTHERAPY, WITH ESPECIAL REFERENCE TO SPINAL TUBERCULOSIS *

CHARLES E. SEVIER, M.D.
COLORADO SPRINGS, COLO.

The use of sunlight in the treatment of chronic diseases is as old as the study of medicine. The specific action of heliotherapy on deep seated tuberculous lesions was first emphasized by the Lyons school of surgeons in France. Their treatment consisted for the most part in exposure of the diseased area alone, although a few of the teachers recommended general, as well as local heliotherapy. In 1903, Rollier opened, in Leysin, Switzerland, the first clinic for the systematic application of the sun bath to the entire surface of the body, in the treatment of extrapulmonary tuberculosis. During the last fifteen years, heliotherapy has spread rapidly, and in our own country, a number of clinics are employing a more or less modified form of this treatment.

The use of the sun bath as a therapeutic agent in the treatment of extrapulmonary tuberculosis is based on the recognition of the fact that tuberculosis, wherever situated, is a general disease presenting local manifestations, and as such demands treatment directed toward the improvement of the general health. Prolonged rest in bed, fresh air, sunshine, good food and the best possible hygienic surroundings are the recognized mainstays in the treatment of pulmonary tuberculosis—a therapy intended to raise the resistance of the patient by building up the general constitution.

Advocates of heliotherapy feel that these reconstructive methods are of equal importance in the care of extrapulmonary tuberculosis. If, in addition to these measures, the entire body is gradually and systematically exposed to the sun and air, preferably at a high altitude, the stimulating, upbuilding effect of this combination is of the greatest therapeutic value. The body is thus placed in its most natural surroundings in an environment that will give it the best chance to combat infection.

The action of the sun's rays can receive only a part of the credit for the results obtained in these cases. Rest, fresh air, food, and the maintenance of immobilization and correction of deformity when present, by appropriate means, must be taken into consideration as well. Just what the relative values of these different factors amount to is difficult to determine.

Prolonged rest in bed, not for a few weeks but for months, or even years, is an essential feature of this treatment. Patients, unfortunately, have not been taught that this long period of physical inactivity is necessary, but have rather been encouraged to seek a short cut to a cure by resorting to more radical measures.

Rollier teaches, however, that the time is well invested, since, at the end of the treatment, not only the lesion itself is healed, and with a good functional result in the majority of cases, but the general condition of the patient has been tremendously improved, and this is the important thing on which he must depend for the prevention of relapse.

The action of sunlight on metabolism has not been definitely explained. Rollier says, "We know that a large number of vital reactions are accelerated and suppose this increased rate to be in some way connected with the absorption of radiant energy by the blood."

Sonne, of the Finsen Institute, has shown that the blood may be heated many degrees above the normal body temperature by the luminous rays of the sun, and he feels that this continued heating of the blood is responsible for numerous changes in metabolism. Rosselet, writing on the scientific basis of heliotherapy, draws the following conclusions concerning the action of sunlight on the body:

> The direct action of light on a deep seated tuberculous lesion has neither been proved nor disproved; it would therefore be a mistake if, in the present state of our knowledge, it were to be denied categorically. The indirect action is well founded on fact. Light absorbed by the skin gives rise to numerous and useful reflexes; absorbed by the blood, the energy given out by the radiations is stored and carried by the blood stream to every part of the body; when liberated, it stimulates the intracellular processes of oxidation and reduction. This condition is the probable explanation of the increased metabolism of the body, of the improvement of the general health, of the increased resistance to disease both present and threatened.

In some way, not yet adequately explained, heliotherapy has a profound influence on calcium metabolism, as has been so well demonstrated by Hess [1] and others in this country.

TECHNIC OF HELIOTHERAPY

The following descriptions of the general technic of heliotherapy, and the treatment of spinal tuberculosis, are based on a personal study of the methods employed in the Rollier clinics and the literature of Rollier [2] and his co-workers.

Before the patient is exposed to the sun, he is put to bed at complete rest until he becomes accustomed to his new surroundings, the change of altitude, temperature, etc. This is usually accomplished within a few days. After the patient has been gradually trained to remain in the open air day and night, the body is first exposed to the air, a little more each day, but not to the sun. This preliminary fresh air treatment should always be given. Too much emphasis cannot be placed on the two essential principles that constitute the basis of the properly applied sun bath. They are: (1) strict individualization, and (2) careful progression. An average dose of sunlight in the beginning may cause vertigo, headache or nervousness in one patient, and simply a feeling of comfort in another. The skin of one patient may burn, while that of another will show no change of color. Dark persons react more favorably toward sunlight than do the fair. The sun bath must be applied gradually, and the time of exposure increased slowly. It must be regulated according to the subjective and objective reactions of the individual. Short periods of insolation alternating with periods of rest enable the patient to tolerate more sunlight than is possible with one long sun bath.

The following schedule is employed in an average case:

The first day, the feet and ankles are exposed for five minutes, three times, interrupted by two ten minute intervals.

The second day, the feet and ankles are exposed for ten minutes, and the legs to the knees are exposed for

---

* Read before the Section on Pharmacology and Therapeutics at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Hess, A. F.: The Ultraviolet Rays of the Sun, J. A. M. A. 84: 1033 (April 4) 1925.

[2] Rollier, A.: La cure de soleil, 1915; Heliotherapy, Oxford University Press, 1923; The Practice of Sun-Cure for Surgical Cases of Tuberculosis and Its Clinical Results, XVII International Congress of Medicine, London, August, 1913.

the last five minutes of this period. This procedure is repeated three times at ten minute intervals.

The third day, the feet and ankles are exposed for fifteen minutes; the legs for ten minutes and the thighs for five minutes, three times with two ten minute periods of rest.

Next the abdomen and then the thorax are similarly exposed. Thereafter using increments of five minutes, this plan is followed until about the fifteenth day, after which the entire body is insolated from the beginning of the bath.

The maximal duration of exposure varies from three to six hours. This is not a hard and fast schedule, but must be varied according to idiosyncrasies and reactions.

When conditions, such as the location of the lesion or its state of healing, permit, the patient is turned to the ventral position, so that the posterior surface of the body may be exposed according to the same plan as outlined for the anterior. The head should not be exposed and the eyes should be protected by smoked glasses.

SPINAL TUBERCULOSIS

A patient suffering from spinal Pott's disease is immobilized at once in the dorsal position, on a hard mattress, over a bed frame which does not sag. After the preliminary fresh air treatment has been given, the sun baths are begun and carried out according to the plan previously described. Restless patients are more completely immobilized by a canvas jacket which buckles over the chest and is firmly fixed to the bed by straps. Knee straps may also be necessary in some cases. The jacket is opened when the chest is insolated.

If the patient is considerably undernourished, even though no deformity is present, the back is protected by several small cushions packed with millet husk. These are firm and act as excellent supports for the normal curvature of the spine. Other cushions are then placed directly under the diseased area, in order to maintain and increase lordosis, and reduce the compression of the vertebral column at the site of the disease. For this purpose, there are used, first, a pad filled with millet husk, then one filled with sand, and finally a wooden block, covered with canvas. The thickness of this support is gradually increased as improvement takes place.

When muscular contraction and pain have disappeared and when roentgen-ray examination shows that recalcification of the bone is taking place, the patient is turned to the ventral position during a part of the sun bath each day.

A triangular, wedge shaped cushion is then placed beneath the chest in order to maintain lordosis. This, too, is gradually increased in thickness. According to Rollier, the following are the chief advantages of the ventral position: "1. By increasing lordosis it reduces pressure on the vertebral bodies. 2. For the same reason it diminishes kyphosis. 3. It facilitates digestion. 4. It permits the direct insolation of the back which, incidentally, greatly improves the condition of the skin and prevents bedsores. 5. It encourages the development of the back muscles."

Development of the back muscles is one of the most important features of this treatment. Under the influence of insolation, they undergo marked hypertrophy and come to act as an admirable support or corset, which plays a major part in the prevention of relapses.

When kyphos is present, it is gradually overcome by the increasing height of the support, which is placed directly under the deformity, as previously described.

The correction of deformity is accomplished chiefly by the development of a compensatory lordosis on each side of the lesion. The normal elasticity of the spinal column, above and below the lesion, permits the kyphos to be pushed in gradually. The end-result sought for the ultimate cure of this disease is the formation of a solid block of bone embracing the vertebrae originally involved.

Abscess, if present, should never be incised, on account of the danger of introducing secondary infection. An abscess should not even be aspirated unless it threatens to rupture. When aspiration is necessary, the needle should be passed through healthy tissue and must under no circumstances be introduced near the point of threatened rupture. As a rule nothing is injected into the abscess cavity, and a pressure bandage is applied following aspiration.

When cervical vertebrae are diseased, extension of the vertebral column should accompany immobilization.

No patient with spinal tuberculosis should be allowed to get up until all symptoms and signs of the disease have disappeared, and until roentgen-ray examination indicates that new bone formation has taken place to a sufficient extent to prevent further displacement of the diseased vertebrae. This stage should be reached, in an average case, after from twelve to twenty-four months of treatment.

The patient then wears a light corset, either of celluloid or of some softer material with firm supports, for about six months. A less rigid corset is then worn for an additional six months, and patients are advised to continue their sun baths at home whenever possible.

PROGNOSIS

When sun treatment is conscientiously and intelligently carried out under suitable climatic conditions, the prognosis in these cases is most favorable. One hundred and ninety-eight cases of spinal Pott's disease were treated in Leysin, from 1903 to 1913. Eighty-six per cent. were cured and 12 per cent. were improved. There were two relapses and four deaths. It must be remembered, of course, that these cases were cared for by an experienced heliotherapist, working under almost ideal conditions. In cases complicated by abscess formation, in which secondary infection has taken place, while the chances of ultimate recovery are always good, the duration of treatment will naturally be prolonged.

INDICATIONS AND CONTRAINDICATIONS FOR HELIOTHERAPY

Sunlight is a potent agent which must be employed with great care. Disastrous results may follow the failure to recognize this fact. It must be emphasized that heliotherapy is in no sense a panacea, however useful it has proved to be in certain diseases.

The principal conditions in which heliotherapy has been shown to be of special value are:

1. Tuberculosis of the bones, joints, glands, skin and serous cavities and with certain modifications, of the lungs.
2. The acute febrile diseases during the stage of convalescence.
3. Rickets.
4. The secondary anemias.
5. Wounds, especially of the sluggish type, and those complicated by chronically discharging sinuses.

6. Fractures, particularly those showing a tendency to nonunion.
7. Osteomyelitis, as an essential part of the postoperative treatment.
8. General debility. This term is used to include that group of persons who are generally below par, but in whom evidences of definite disease are wanting.
9. So-called pretuberculous children.

Heliotherapy is not to be employed in the presence of:

1. Nephritis.
2. High fever with toxemia.
3. Advanced circulatory disease, such as myocarditis, arteriosclerosis and decompensated cardiac disease.
4. Renal tuberculosis when bilateral and showing symptoms of impending uremia.

Heliotherapy should be stopped whenever acute intercurrent infection develops, and should not be resumed until the lapse of several days after the normal temperature has returned.

COMPARISON WITH OTHER METHODS OF TREATMENT

The prime object in the treatment of extrapulmonary tuberculosis is identical with that of the pulmonary form; namely, to bring about permanent healing of the tuberculous lesion or lesions, together with as complete restoration of general health as may be possible.

The employment of heliotherapy fulfils these conditions more completely than does any other plan of treatment. Heliotherapy, in extrapulmonary tuberculosis, is to be preferred to surgical measures on other grounds as well, the chief of which are:

1. The normal articular functions are retained or restored in the majority of cases.
2. Secondary infection, so frequently resulting from surgical intervention, is almost invariably avoided.
3. The results of heliotherapy, so far as the local lesion is concerned, generally render amputations or resections unnecessary.

The use of plaster for the maintenance of immobilization and the correction of deformity deserves merely passing condemnation, since all mechanical requirements can be met by other means, in conjunction with full exposure of the body to the sun.

Immobilization by other methods, such as the Bradford frame, splints, or other mechanical contrivances, and the operations of spinal fusion do not seem to offer any mechanical advantages sufficient to compensate for the loss of the curative value of properly conducted insolation.

It should further be emphasized that none of these other modes of treatment give adequate consideration to the chief object sought, namely, the cure of tuberculosis and the restoration of general health.

In closing, mention must be made of artificial sources of actinic rays, as represented by the mercury vapor and carbon arc lamps.

It is probably true that some of these devices yield larger proportions of ultraviolet radiations than are to be found in natural sunlight.

Proof is wanting, however, to show that the therapeutic value of sunlight depends entirely on these limited rays. On the contrary, the results of exposure to natural sunlight seem to be definitely superior, at least in the conditions here discussed, to those yielded by the ultraviolet rays alone.

This fact suggests, if it does not prove, that other parts of the solar spectrum have therapeutic actions which we can ill afford to do without.

ABSTRACT OF DISCUSSION

Dr. G. B. Webb, Colorado Springs, Colo.: The French mind of prevision, recognized that "of all the flowers, the human flower is that which most needs the sun." Twenty years ago we started our first-born baby sun bathing the legs up to ten minutes a day, little imagining that Hess and others would find heliotherapy to be a prevention of rickets through the increase in calcium metabolism and the setting free of certain vitamins. I continued to advise short sun baths for infants. At that time we were using heliotherapy for children in so-called surgical tuberculosis and for children in the so-called pretuberculosis stage. The technic we employed was the exposure for two minutes on the front of the body and two minutes on the back, increasing a minute each day. The head was protected, as Herodotus had advised in ancient times, and muscle development was noted as it had been by this early observer. I am frequently asked wherein lies the difference in sun bathing at high and low altitudes: 1. At 6,000 feet, 75 per cent. of the total sun energy exists. At sea level, 50 per cent. of the total sun energy exists. 2. At high elevation, there is a regularity of sunshine. The air is not oppressively hot in summer, and in winter the concentration of the sun counteracts the cold atmosphere. 3. The variations in the intensity of solar radiations are less at high altitudes. Dr. Sevier has spoken of the preliminary air baths. These are of value apart from the sun bathing, as first shown by Benjamin Franklin, a victim of a pulmonary complaint, who also first preached the gospel of fresh air. In patients with pulmonary tuberculosis who are afebrile, we begin sun exposures very carefully on the legs and later, after good pigmentation, on the abdomen and back; and, should no reactions occur, the chest may be carefully bathed. It has been shown that even the sun bathing of the feet may cause distant focal reaction, such as reaction in the mesenteric lymph nodes in the case of mesenteric tuberculosis. The reason why persons who bronze the most do the best is not yet explained; the general question of tissue reaction may be involved. There are several theories, none proved. My colleague, Dr. C. H. Boissevain, realizing the deadly effect of light itself on tubercle bacilli, is now attempting to determine whether phosphorescence resulting from radiation may not play some part. There is no doubt that the cheering mental effect of heliotherapy is valuable. It has been well written that "light and laughter synchronize; darkness and despair do likewise." The prolonged rest, as brought out by Dr. Sevier, is the main remedy for restoration of patients. A pulmonary patient needs from one to three years of rest, and the first year should be as complete as possible. The sunning is simply an adjunct to the more important rest; and care must be exercised even in allowing pulmonary patients to sit in the sun. We had one patient who took sun bathing thirteen years ago for cervical adenitis. After a year of sun bathing, the patient developed tuberculosis of the knee. I should like to ask whether Dr. Sevier has experienced a similar incident.

Dr. F. C. Johnson, New Brunswick, N. J.: Can either of these gentlemen give us at sea level a little more definite program for exposures?

Dr. Paul D. White, Boston: I had the unusual opportunity last summer of visiting the Leysin clinic and seeing where Rollier works. I can testify to the enthusiasm of the patients and physicians there. It appears to be one of the great meccas of the world for physicians, who come by scores from every country.

Dr. Charles E. Sevier, Colorado Springs, Colo.: Dr. Rollier's "school in the sun" is one of the most interesting features of his work. In this school, so-called pretuberculous children, as well as those presenting various other conditions, are given a thorough course of sun bathing. Each child is furnished with a portable desk, and classes are conducted outdoors whenever the weather permits. I was very much interested in Dr. Webb's remarks relative to a patient developing a secondary lesion while taking a course of sun treatment. This, of course, may occur. In one of his books, Dr. Rollier mentions the development of pleural effusions in two patients with tuberculosis of the peritoneum—one a boy, aged 13, the other a girl, aged 17. Coincident with the appearance of the effusions, high temperatures occurred and the sun baths were discontinued temporarily. After a short time, the temperatures receded. Sun baths were then resumed, and both patients were later discharged, cured. With regard to the question of insolation at sea level, I may say that no hard and fast schedule can be laid down for any given altitude. LoGrosso, working at a comparatively low altitude in Perrysburg, N. Y., prescribes much longer intervals of rest between the regular three five-minute periods of insolation. At all altitudes, each patient must be studied carefully and the time of exposure to the sun regulated according to individual reactions. During the middle of the day, especially in summer, extreme care is necessary. Insolation should be practiced only when the air is relatively cool. The sun bath, when accompanied by a hot air bath, becomes a veritable Turkish bath, which is extremely fatiguing and depressing. This, of course, should be avoided.

GASTRIC EXCRETION OF NEUTRAL RED *

PERCY B. DAVIDSON, M.D.
BOSTON
EDOUARD WILLOCX, M.D.
BRUSSELS, BELGIUM
Fellow of the Commission for Relief in Belgium Educational Foundation
AND
CUSHMAN D. HAAGENSEN, M.D.
BOSTON

The application of neutral red as a vital stain has been a wide one since its introduction by Ehrlich into medicine. Its use in the study of gastric secretory functions dates from Fuld's[1] work on dogs with Pawlow pouches in 1908, in which he demonstrated its excretion into the pouch, when the dye was instilled into the main stomach. Finkelstein,[2] in 1922, injecting neutral red and other dyes subcutaneously, studied the excretion into Pawlow pouches and substantiated Fuld's earlier observations. Glaessner and Wittgenstein,[3] in 1923, applied this knowledge to the formulation of a "gastric function test," using as their criterion the appearance time of the dye in the stomach after intramuscular injection. Subsequently, publications by Simici and Dumitriu,[4] Koopman,[5] and Carnot and Gaehlinger[6] have emphasized the usefulness of this procedure. The studies reported here aim particularly to consider the clinical usefulness of determining the gastric excretion of this dye.

Glaessner and Wittgenstein,[3] after injecting 4 c.c. of a 1 per cent. solution of neutral red intramuscularly, observed the appearance time in the stomach. The appearance time in normal persons was from twelve to fifteen minutes, in hyperacidity eight minutes or later, in hypo-acidity from twenty-five to forty-five minutes, and in achylia not within ninety minutes. The absence of excretion of the dye in achylia attracted our attention and suggested the advisability of further work, especially in cases associated with this condition.

Our experience with Glaessner and Wittgenstein's[3] method of allowing the contents to siphon and determining the appearance time was beset with two main difficulties. First, siphonage on a relatively empty stomach is unsatisfactory when one attempts to observe gross changes in short periods of time. Second, quantitation of the excreted dye is impossible without a more satisfactory drainage. To counteract these factors, the following method was devised.

METHOD

On a fasting stomach, a Rehfuss tube is passed and lavage with water is continued until the return is clear. Four cubic centimeters of a 1 per cent. aqueous solution of neutral red is then injected intramuscularly into the buttocks. Fifty cubic centimeters of tepid tap water is instilled into the stomach and allowed to siphon into a flask. At the end of fifteen minutes the remaining water is extracted and put into the flask. Fifty cubic centimeters of tepid water is again added and allowed to drain into another flask. The addition of 50 c.c. of water and subsequent siphonage are repeated every fifteen minutes until two hours after the injection of the dye. The appearance time of the dye is noted in a glass window in the tube.

We have also computed the amount of excretion in the urine, hoping to be able to ascertain some relationship to the gastric output. Our results are such that we think it superfluous for the clinical conduct of the test. However, the determination was done by having the patient void before the injection of the dye (this specimen of urine being retained as a contrast substance to be used in a comparator) and again two hours after the injection of the dye.

Reading.—The amount of excretion of the dye is computed by comparing a given specimen with standards of varying intensity. Our standards are made up from 1 : 5,000 to 1 : 1,000,000, inclusive (containing, respectively, 20 mg. and 1 mg. to 100 c.c.), are put up in test tubes of 110 by 10 mm.; the standards from 1 : 100,000 to 1 : 1,000,000 are put up in test tubes of 215 by 25 mm. (containing, respectively, 1 mg. and 0.1 mg. to 100 c.c.). The more concentrated standards in the smaller tubes are compared with the unknowns in test tubes of like size; the less concentrated standards in the large tubes are compared with the unknowns in tubes of equal size. Reflected light has been found most satisfactory for comparison. It is almost impossible to read greater dilutions than 1 : 1,000,000, although definite dye content can be seen; such specimens are then said to have a *trace*. It is felt that standards should be made up at least once monthly and should be kept in the dark when not in use.

Difficulties in Reading.—The difficulties in reading occur because of conflicting substances on the one hand, and the alkalinity of the stomach contents of some persons on the other. Bile, blood and food contents have been sources of annoyance in attempting to get accurate readings.

By modifying Cowan's method, as outlined by Piersol and Bockus[7] for duodenal contents, satisfactory readings of bile-tinged specimens have been obtained. Our modification consists in taking 10 c.c. of the specimen in a 15 c.c. centrifuge tube, adding 0.3 c.c. of a concentrated solution of lead acetate and 0.2 c.c. of a concentrated solution of calcium chlorid, heating in a water bath for five minutes, centrifugalizing at high speed for ten minutes, and comparing the supernatant fluid with the standard to determine the concentration of the dye. Before this method for quantitating bile-stained specimens was used, only the presence of the dye was noted on filter paper. Some of our determinations are recorded as containing *bile and dye;* these determinations were done before the use of the modification of the Cowan method.

---

* From the Thorndike Memorial Laboratory, Boston City Hospital, and the Department of Medicine, Medical School of Harvard University.

* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Fuld, E.: Ausscheidung von Neutralrot auf den Magen, München. med. Wchnschr. **55**: 2264 (Oct. 27) 1908.

[2] Finkelstein, R.: Zur Frage der Farbstoffausscheidung durch den Magen, Arch. f. Verdauungskr. **30**: 299, 1922.

[3] Glaessner, K., and Wittgenstein, H.: Neue Funktionsprufung des Magens, Wien. klin. Wchnschr. **36**: 791 (Nov. 8) 1923; Ein neuer Weg zur Funktionsprufung des gesunden und kranken Magens, Klin. Wchnschr. **2**: 1650 (Aug. 27) 1923.

[4] Simici, D., and Dumitriu, C.: L'elimination provoquée des substances colorantes par l'estomac, Arch. d. mal. de l'app. digestif **14**: 310 (April) 1924.

[5] Koopman, J.: Een nieuwe Methode voor Maagonderzoek, Nederlandsch Maandschr. v. Geneesk. **12**: 215, 1924.

[6] Carnot, P., and Gaehlinger, H.: Une nouvelle méthode d'appréciation de la sécrétion stomacale: la chromoscopie gastrique, Paris méd. **2**: 377 (Nov. 8) 1924.

[7] Piersol, G. M., and Bockus, H. L.: Observations on the Value of Phenoltetrachlorphthalein in Estimating Liver Function, Arch. Int. Med. **31**: 623 (May) 1923.

We have been unable to devise a satisfactory quantitative test when blood is present. It is felt, however, that the dye can be qualitatively detected by acidifying with glacial acetic acid, thereby converting the hemoglobin to acid hematin. The solution is then filtered, and the presence of dye on the filter paper serves as a qualitative test.

To eliminate the difficulties presented by food contents, the solution is centrifugalized and the supernatant fluid compared with the standards. Opalescence is fairly well combated by viewing against a filter paper background.

Many patients who have alkaline stomach contents that is, alkaline to neutral red or of a p_H over 7) will excrete the dye. On the alkaline side, neutral red is yellowish; by adding a few drops of glacial acetic acid to every yellow specimen and determining the reaction to litmus paper, one may differentiate bile from alkaline neutral red.

RESULTS

Determinations have been made on six groups of cases: (1) those without gastro-intestinal disease (symptoms or lesions) or anemia; (2) peptic ulcer; (3) gastric carcinoma; (4) secondary anemia with gastric anacidity; (5) pernicious anemia, and (6) miscellaneous. Tables 1 to 6 show the findings in the cases studied.

The group of patients studied without symptoms or evidences of disease in the alimentary tract all excreted the dye at some time in the test period. The average appearance time was 22.8 minutes after the injection, with the individual observations ranging from 9 to 40 minutes.

The average period during which the dye was present in the gastric contents was 1.4 hours. As not all the cases were checked by gastric analyses, comparative figures are not available. There is no striking uniformity in the excretion in this group; many showed

TABLE 1.—*Observations on Patients without Digestive Disease or Anemia*

Case	Diagnosis	Appearance Time, Minutes	Amounts Recovered from Stomach (Mg.) in Fifteen Minute Periods: 0-15	15-30	30-45	45-60	60-75	75-90	90-105	105-120	Amount Recovered from Stomach, 2 Hours	Amount Recovered in Urine, 2 Hours	Total Amount Recovered, 2 Hours	Percentage of Recovery: Stomach	Urine
1	Pleural effusion..............	22	0	0.3	0.9	0	0	0	0	0	1.2	2.4	3.6	3.0	6.0
2	Bayonet wound of abdomen.	35	0	0	Trace	0.1	0.2	0.09	Trace	0	0.31+	4.0	4.31+	0.7+	10.0
3	Arthritis..........................	20	0	0.14	0.2	0.1	0.12	Trace	Trace	Trace	0.56+	.....	.....	1.4+	....
4	Neurasthenia..................	40	0	0	Trace	Trace	0.007	0.055	0.007	0	0.069+	4.95	5.019+	0.2+	12.3
5	Postpneumonic asthenia.....	35	0	0	0.015	0.085	0.13	0.06	0.07	0.065	0.42	1.05	1.47	1.05	2.6
6	Postpneumonic asthenia.....	25	0	Trace	Trace	Trace	0	0	0	0	Trace	3.8	3.8+	?	9.5
7	Pulmonary tuberculosis......	30	0	0	0.13	0.074	0.43	0.183	0.06	0.227	1.103	6.8	7.904	2.7	17.0
8	Pleural effusion, bullet wound	9	0.182	0.305	0.29	0.133	0.104	0.06	0.052	Trace	1.127+	5.228	6.356+	2.8+	13.0
9	Convalescent pneumonia.....	18	0	0.084	0.102	Trace	0.067	Trace	Trace	0	0.252+	4.02	4.272+	0.6+	10.0
10	Arthritis..........................	10	Trace	Trace	Trace	Trace	Trace	Trace	Trace	Trace	Trace	2.924	2.924+	?	7.3
11	Neurasthenia..................	20	0	Trace	Trace	0.031	0.091	0.017	0.132	0.051	0.322+	4.1	4.422+	0.8+	10.2
12	Lead poisoning................	10	0.188	0.238	0.429	0.82	0.555	0.272	0.705	0.137	3.344	9.996	13.340	8.3	25.0
13	Bronchitis, emphysema.......	20	0	Trace	Trace	0.512	0.64	1.38	0.91	0.082	3.553+	21.75	25.306+	8.8+	54.3

TABLE 2.—*Observations on Patients with Peptic Ulcer*

Case	Location	Appearance Time, Minutes	Amounts Recovered from Stomach (Mg.) in Fifteen Minute Periods: 0-15	15-30	30-45	45-60	60-75	75-90	90-105	105-120	Amount Recovered from Stomach, 2 Hours	Amount Recovered in Urine, 2 Hours	Total Amount Recovered, 2 Hours	Percentage of Recovery: Stomach	Urine
23	Duodenum....................	17	Trace	0.275	Bile and dye	0.126	0.088	0.08	0.1	Trace	0.669+	1.125	1.794+	1.6+	4.4
24	" "	30	Bile	Bile	0.1	0.07	0.05	0.058	0.07	Trace	0.318+	5.7	6.018+	0.87+	14.2
25		15	0.016	0.208	0.35	0.205	0.124	0.126	0.122	0.077	1.228	3.507	4.756	3.1	8.8
26		20	0	0.395	0.153	0.18	0.459	0.37	0.28	0.15	2.387	10.6	12.987	8.0	26.5
27	"	15	0	Blood and dye	0.165	0.13	Blood and dye	Blood and dye	Blood	Blood	0.295+?	4.6	4.895+?	...	11.5

TABLE 3.—*Observations on Patients with Carcinoma of Stomach*

Case	Location	Appearance Time, Minutes	Amounts Recovered from Stomach (Mg.) in Fifteen Minute Periods: 0-15	15-30	20-45	45-60	60-75	75-90	90-105	105-120	Amount Recovered from Stomach, 2 Hours	Amount Recovered in Urine, 2 Hours	Total Amount Recovered, 2 Hours	Percentage of Recovery: Stomach	Urine
14	Pylorus........................	20	0	0	Trace	Trace	0.039	Trace	0	0	0.039+	10.0	10.039+	0.1+	25.0
15	Pyloric antrum and fundus..	65	0	0	0	0	Trace	0	Trace	Bile	Trace	3.75	3.75+	?	9.4
16	Fundus.........................	30	Bile	Bile	Bile and dye	Bile and dye	Bile and dye	Bile and dye	Bile and dye	Bile and dye	Bile and dye	0.2	0.2+?	?	0.5
17	Repeat of No. 16 (2 mo. later)	60	Bile	Bile	Bile	Bile and dye	Bile and dye	Bile	Bile	Bile	Bile and dye	2.5	2.5+?	?	6.2
18	Fundus.........................	45	0	0	0	0.022	0.009	0.025	0.067	0	0.123	2.36	2.483	0.3	5.9
19	Fundus.........................	15	0	Trace	Trace	Trace	0.25	0.34	0.163	0.5	1.253+	.....	.....	3.1+	...
20	Pyloric antrum................	45	0	0	0	0.054	0.088	0.112	0.073	Trace	0.328+	2.12	2.448+	0.8+	5.3
21	Pyloric antrum................	15	0	0.041	0.033	0.022	0.05	0.06	0.068	0.066	0.336	.....	.....	0.8	...
22	Pylorus........................	15	0.134	0.069	0.15	0.034	0.033	0.03	0.024	0.042	0.511	2.24	2.751	1.2	5.6

only a trace at periods in the test; one showed only a trace in three specimens.

Five patients with peptic ulcer with hyperacidity were studied, all of whom excreted the dye. The average appearance time was 19.4 minutes after the injection, the individual observations ranging from 15 to 30 minutes. The average period during which the dye was present was 1.8 hours. There seems to be a tendency toward a greater excretion of the dye in the first hour of the test period.

Table 4.—*Observations on Patients with Secondary Anemia (with Gastric Anacidity)*

Case	Supplementary Diagnosis	Appearance Time, Minutes	Amounts Recovered from Stomach (Mg.) in Fifteen Minute Periods: 0-15	15-30	30-45	45-60	60-75	75-90	90-105	105-120	Amount Recovered from Stomach, 2 Hrs.	Amount Recovered in Urine, 2 Hrs.	Total Amount Recovered, 2 Hrs.	Percentage of Recovery: Stomach	Urine	Red Blood Cells	Hemoglobin	Color Index
28	Hemorrhoids.........	60	0	0	0	0	Trace	0.048	Trace	0	0.048+	14.25	14.298+	0.1+	35.6	5,600,000*	84	0.75
29	Arthritis..............	30	0	0	0.045	0.215	0.097	0	0	0	0.357			0.9				
30	Hemorrhoids.........	60	0	0	0	0	0.037	0.066	0.079	0	0.182	.....	......	0.4	....	....	..	....
31	Sprue ?; Addison's disease ?	30	0	0	0.252	0.052	Bile and dye	7.2	6.2	1.22	14.921+	..... 10.143	...... 25.067+	37.3+	.... 25.3	1,488,000 1,620,000	40 24	1.4 0.75
32	....	75	0	0	0	0	0	Trace	0.055	Trace	0.055+	.....	......	0.1+	....	4,190,000†	36	0.43
33	Arteriosclerosis.......	90	0	0	0	0	0	0	0.22	2.36	2.58	2.165	4.745	6.4	5.4	2,600,000	55	1+
34	General arteriosclerosis	60	0	0	0	0	0.031	0.094	0.045	0.075	0.245	1.073	1.319	0.6	2.6	2,100,000	20	0.47
35	....	75	0	0	0	0	0	Trace	0	0	Trace	6.56	6.56+	...	16.4	4,500,000	43	0.47

* Patient had been under observation for twenty hours. Anacidity constant. Before transfusion: red blood cells, 3,512,000; hemoglobin, 30; color index, 0.4.

† Case was diagnosed as secondary anemia and anacidity in 1916.

Table 5.—*Observations on Patients with Pernicious Anemia*

Case	Appearance Time, Minutes	Amounts Recovered from Stomach (Mg.) in Fifteen Minute Periods: 0-15	15-30	30-45	45-60	60-75	75-90	90-105	105-120	Amount Recovered from Stomach, 2 Hrs.	Amount Recovered in Urine, 2 Hrs.	Total Amount Recovered 2 Hrs.	Percentage of Recovery: Stomach	Urine	Red Blood Cells	Hemoglobin	Color Index
36	0	0	0	0	0	0	0	0	0	0	0.68	0.68	0	1.7	3,370,000	77	1.1
37	0	0	0	0	0	0	0	0	0	0	2.4	2.4	0	6.0	1,250,000	27	1.1
38	0	0	0	0	0	0	0	0	0	0	0.26	0.26	0	0.6	1,875,000	44	1.2
39	0	0	0	0	0	0	0	0	0	0	7.6	7.6	0	19.0	3,300,000	87	1.3
40	0	0	0	0	0	0	0	0	0	0	...	...	0	...	1,650,000	44	1.3
41	0	0	0	0	0	0	0	0	0	0	4.4	4.4	0	11.0	1,200,000	28	1.2
42	0	0	0	0	0	0	0	0	0	0	8.725	8.725	0	21.8	1,500,000	42	1.4
43	0	0	0	0	0	0	0	0	0	0	....	....	0	...	600,000	12	1.0

Table 6.—*Observations on Patients with Miscellaneous Diseases*

Case	Diagnosis	Appearance Time, Minutes	Amounts Recovered from Stomach (Mg.) in Fifteen Minute Periods: 0-15	15-30	30-45	45-60	60-75	75-90	90-105	105-120	Amount Recovered from Stomach, 2 Hrs.	Amount Recovered in Urine, 2 Hrs.	Total Amount Recovered, 2 Hrs.	Percentage of Recovery: Stomach	Urine	Comment
44	Asthma..............	0	0	0	0	0	0	0	0	0	0	1.8	1.8	0	4.5	Color index, 1.2; no marked anemia; atrophic glossitis; anacidity; loss of weight
45	Cardiorenal..........	22	0	Trace	0.035	0.078	Trace	0.06	Trace	Trace	0.173+	1.25	1.423+	0.4+	3.1	
46	Paget's disease.......	30	0	0	3.24	0.38	1.5	0.638	1.26	2.52	9.538	5.267	14.805	23.8	13.1	Gastro-enterostomy for leiomyoma
47	Abdominal carcinoma and carcinoma of liver	7	0.156	0.1	0.268	0.43	0.4	0.09	0.092	0.136	1.672	9.0	10.7	4.2	22.5	
48	Sprue................	30	0	0	0.012	0.034	0.026	0.033	Trace	0.024	0.129+	.....	.....	0.3+	....	Red blood cells, 1,000,000; hemoglobin, 24; color index, 1.2

Nine patients with carcinoma of the stomach were studied, all of whom excreted the dye. The average appearance time was 35.5 minutes after the injection, with the individual observations ranging from 15 to 65 minutes. The average period during which the dye was present was 1.25 hours. The excretion of the dye seems to be generally less than in either of the foregoing groups, though one patient (Case 19) showed high excretion late in the collection [illegible]

Eight patients with secondary ane[illegible] anacidity were studied, all of whom excreted t[illegible] average appearance time was 60 minutes a[illegible]on, with the individual observations ranging from 30 to 90 minutes. The average period during which dye was present was 0.75 hour. The general tendency appears to be toward a very low excretion, but one patient showed a higher excretion, late in the test period, than any other patient examined.

Eight patients with pernicious anemia were studied, none of whom excreted the dye within the two hour test period. It is interesting to note that though the stomach as an avenue of exit for the dye was not functioning, the urinary excretion was not consistently higher than in those patients with high gastric excretion. The adequate return-flow obtained and the likelihood that the emptying time is not appreciably shorter than in the group of secondary anemia with anacidity suggest that the rapid emptying time usually found in g[illegible] anacidity is not responsible for the inability to r[illegible] dye in the cases of pernicious anemia.

[illegible] of patients not falling into the foregoing gr[illegible] studied, of whom only one failed to exc[illegible] This patient (Case 44) was about 60 yea[illegible] matic (probably simple bronchial asthma). At the time of the examination he certainly did not have a typical case of pernicious anemia, but he presented the following striking features: atrophic glossitis, achylia gastrica and high color index. It is questionable whether this case might be considered one of pernicious anemia in a remission, though there was no previous history of marked anemia. Another case (48), of tropical sprue, presented a blood picture absolutely typical of pernicious anemia, but the dye was excreted in fairly large amounts over a long period of time. Case 46 is interesting because of a previous gastro-enterostomy for a leiomyoma of the stomach; the patient had a high excretion of the dye without any evidence of bile in the contents obtained.

Some preliminary experiments have been done to ascertain the mechanism of the excretion of this dye. Rabbits and cats injected with 2 c.c. of the dye showed, when killed one-half hour afterward, abundant excretion of the dye lying on the rugae of the stomach, especially in the fundal region; in addition, the pelves of the kidneys had a definite reddish hue. These experiments suggested, as have those of previous workers, that the principal avenues of exit are by way of the stomach and the kidneys, though the intestines and liver also excrete it. Frozen sections made of the stomach in these animals demonstrated, as has been noted by Harvey and Bensley,[8] that the dye is seen in its alkaline color at the base of the glands of the fundal portion of the stomach and in its acid color at the lumina of the glands.

The dye has been shown to be reabsorbed from the alimentary tract. A normal human subject taking 40 mg. by mouth in a capsule excreted the dye for thirty hours. It was not, however, recovered quantitatively from the urine. Absorption from the intestine was noted by Schlaepfer[9] in 1908.

As the kidneys and stomach are the main avenues of exit and have usually acid secretions, the possibility of acid in the lumen of an organ attracting the dye was borne in mind. To determine this, patients with pernicious anemia, who under the conditions of the test did not excrete the dye, were used. Four cubic centimeters of a 1 per cent. solution was injected intramuscularly and 100 c.c. of fortieth normal hydrochloric acid was put into the stomach. Observations for two hours showed no excretion of the dye.

As many observers[10] concluded that the excretory power of the stomach for neutral red paralleled its secretory power, experiments were done on a dog with Pawlow pouch to ascertain the effects of food stimuli on the excretion of neutral red from the pouch. Two cubic centimeters of a 1 per cent. solution of neutral red was injected intramuscularly. Twenty-five cubic centimeters of water was used to lavage the pouch at the end of each fifteen minute period, during which time the drops were collected in a container in the usual way. Observations were obtained on the fasting animal and again, four days later, when stimulated with a meat meal, containing approximately 100 gm. of protein, at the time of the injection. Table 7 shows one such experiment.

COMMENT

The extreme variations of the gastric secretion in health and disease make one skeptical of the possibilities of the utilization of any method that does not give clear cut uniformly characteristic curves for the disease complex. Previous observers[11] have reported characteristic appearance times for various gastric conditions. The averages of our appearance times appear to have substantiated the relationship obtained in their results; that is, that the appearance time in hyperacidity (as in ulcers) was earlier than in a normal group (without digestive disease), and that in gastric anacidity it is late or absent. Our figures are not strictly comparable to those of previous workers because of the difference in method; siphonage without the instillation of fluid was used by previous observers. This, on the one hand, might delay the observance of the dye through factors of dilution, while, on the other hand, it might accelerate the realization of the color through a more rapid flow from the stomach. Furthermore, the fact that water is an adequate stimulus to gastric secretion may introduce another factor, which obviates comparison of these results with those of previous observers. The variations in the appearance times among individuals is so great that it seems impossible to draw any conclusions as to the pathologic physiology of the stomach with this method.

It was hoped that the introduction of a quantitative method would give data characteristic of disease complexes. The total dye excreted in the hyperacidity (ulcer) cases is higher than in our group without digestive disease (gastric analysis undetermined); patients with gastric anacidity who do excrete the dye have a generally lower excretion. But the differences among individuals are such that no characteristic quantitative excretion curve can be accepted for any type of case, as may be seen strikingly in Case 31 (anacidity, and a total excretion of 14.9 mg.) and in Case 24 (hyperacidity and a total excretion of 0.34 mg.). It is, however, interesting that the period in which dye was present in the stomach is for those without digestive disease 1.4 hours; for those with peptic ulcer with hyperacidity, 1.7 hours; with carcinoma of the stomach, 1.25 hours, and for those with secondary anemia with anacidity, 0.75 hour. Observations 16 and 17 on a case of carcinoma of the stomach done two months apart show a decreased period of presence of the dye as the neoplasm advanced.

Table 7.—*Observations on Dog with Pawlow Pouch*

	Amounts Recovered from the Pouch (Mg.) in Fifteen Minute Periods								Total Amount Recovered, 2 Hrs.
	0-15	15-30	30-45	45-60	60-75	75-90	90-105	105-120	
Fasting............	0	0.018	0.023	0.06	0.12	0.022	Trace	0.02	0.243
After protein meal	0.03	0.083	0.076	0.063	0.026	0.017	0.021	Trace	0.324

The striking feature of these results is that within the anacidity group are two types of individuals, those who do and those who do not excrete the dye within the two hour test period. In the former group are the cases of carcinoma of the stomach and those of secondary anemia with anacidity; in the latter are the cases of pernicious anemia and one doubtful case. There have been several cases in which the differential diagnosis between secondary anemia with anacidity and pernicious anemia has been difficult; the differentiation by the excretion of neutral red has been very helpful in these instances.

---

[8] Harvey, B. C. H., and Bensley, R. R.: Formation of Hydrochloric Acid in the Foveolae and on the Surface of the Gastric Mucous Membrane and the Nonacid Character of the Contents of the Gland Cells and Lumina, Biol. Bull. **23:** 225 (Sept.) 1912.

[9] Schlaepfer: Eine neue Methode zur Funktionsprüfung des Magens, München Med. Wchnschr. **55:** 1865 (Sept. 8) 1908.

[10] Glaessner and Wittgenstein (Footnote 3, first reference). Koopman (Footnote 5). Carnot and Gaehlinger (Footnote 6).

[11] Glaessner and Wittgenstein (Footnote 3, first reference). Carnot and Gaehlinger (Footnote 6).

As experimentally neutral red is seen in abundance in the lumen of the hydrochloric acid secreting glands in its characteristic reddish acid hue and in the cells themselves in its yellowish alkaline hue, the possibility arises that its excretion into the stomach depends on the integrity of the hydrochloric acid secreting tissue of the stomach. It is known that abundant hydrochloric acid secreting tissue may exist in the stomach in the presence of a neoplasm; on the other hand, many pathologists feel that there is absence of hydrochloric acid secreting tissue in pernicious anemia. In view of this opinion, which is prevalent, though by no means established by fact, the complete absence of excretion of the dye in cases of pernicious anemia suggests its value in demonstrating the presence of hydrochloric acid secreting tissue. The delayed appearance without complete absence, in the other types of anacidity, may indicate a diminished excretion in stomachs on account of malfunctioning glandular tissue, or in which only a small amount of glandular tissue remains intact (of the hydrochloric acid secreting type). The relatively increased excretion in our cases of hyperacidity and in our Pawlow pouch dog after stimulation of gastric activity suggests that some relationship exists between the secretory ability of the stomach and the excretion of neutral red. But, for clinical purposes, the variations are so great among different individuals that only its presence or absence can be considered of diagnostic value.

The excretion of the dye in long standing secondary anemia with anacidity and its absence in pernicious anemia are especially interesting as regards the possible pathogenesis of the gastric picture in pernicious anemia. Our data are suggestive that long standing anemia in itself will not produce the type of excretion curve seen in pernicious anemia. This suggests that the gastric lesions in pernicious anemia are the result of some toxic factors, such as cause the blood and neurologic features.

CONCLUSIONS

1. Contrary to the observations of previous workers, the appearance time of neutral red in the stomach after the intramuscular injection is not sufficiently uniform in various gastric syndromes to be of clinical value.
2. Quantitative studies show too great variability of excretion to be of diagnostic value.
3. The presence or absence of excretion of the dye are the only points of clinical significance; i. e., in the differentiation of two types of gastric anacidity. The complete absence of the dye in pernicious anemia in contrast to its excretion, even in small amounts, in carcinoma with anacidity and secondary anemia with anacidity is of definite practical value.
4. The excretion of neutral red in the human stomach is probably dependent on the presence of hydrochloric acid secretory tissue.

ABSTRACT OF DISCUSSION

Dr. George Morris Piersol, Philadelphia: I have been particularly interested in this paper because for some time we have been working with this test. We approached the subject from a slightly different angle. Instead of grouping our cases according to diagnosis, we were especially anxious to determine what, if any, relationship existed between the elimination of this dye and the degree of gastric acidity. Therefore, we divided our cases into those in which there were normal, hyperacid and hypo-acid stomachs. In the beginning we followed a technic identical with that adopted by Dr. Davidson, introducing 40 mg. of the dye intramuscularly, and then determining its appearance time. We further followed his technic in that we used the drip method of expressing the gastric contents. Our results, in the main, corresponded to those obtained by Davidson, Willocx and Haggansen when they determined the appearance time of the dye. We found in a group of hyperacid cases that the average appearance time was twenty-three minutes, somewhat longer than theirs, which I believe was nineteen minutes. In our normal cases the average appearance time was fourteen minutes, in contrast to twenty-two and four-fifths minutes in their series; whereas in our subacid cases the time was thirty-two minutes, as compared to their average of thirty-five and one-half minutes. We also observed the same extraordinary individual variation in the appearance time as they did. We next attempted the quantitative determination of the dye eliminated, again employing the technic of Davidson, Willocx and Haagensen, injecting 40 mg. of dye intramuscularly. Here, again, we observed wide individual variations and found extremely small quantities of dye eliminated by the stomach. We obtained figures considerably lower than the figures given by the authors in their charts.

By the intravenous method we found the average appearance time to be four minutes in hyperacid cases, six minutes in the normal subjects, and fourteen minutes in the subacid cases. The amount of dye eliminated averaged 1.69 mg. in normal acidity cases, 2.39 mg. in hyperacidity cases, and 0.35 mg. in subacidity cases. From these observations we feel that this intravenous technic is, on the whole, the more satisfactory. The intravenous use of the dye proved of most value in the diagnosis of achylia gastrica. In a series of alleged achylia gastrica cases in which no dye was eliminated after intramuscular injection, in about 50 per cent. some dye was eliminated after intravenous injections, but in true achylia even after intravenous injection no dye appeared in the stomach. It is our feeling that the greatest clinical value of the test is in the recognition of true achylia gastrica. In all other cases the individual variations are too great to make the method reliable. We discovered that the dye was never eliminated from the saliva. We always found it eliminated in the urine, the quantity in the urine varying with the amount secreted in the stomach.

We have been forced to the conclusions quite identical with those of Davidson, Willocx and Haggansen that the neutral red test for gastric function is not satisfactory because of its wide variations, and that consistent results are found only in achylia gastrica.

Dr. A. J. Carlson, Chicago: Since achylia gastrica seems to indicate that the excretion of the dye by the stomach depends on the integrity of the acid secreting mechanism, I wonder whether Dr. Piersol and Drs. Davidson, Willocx and Haggansen might not consider it expedient to combine the intravenous injection of the dye with histamin. Histamin is a definite stimulant to gastric secretion in man by mouth or hypodermically in doses too small to have any systemic effect. On the question of the dye and the acid producing cells, Dr. Ivy and Drs. Davidson, Willocx and Haggansen have worked on this problem for some time. They find an acid reaction in the lining and actively secreting cells contrary to the observations of Davidson, Willocx and Haggansen.

Dr. Martin G. Vorhaus, New York: Last year, Dr. L. M. Gompertz and I reported on gastric analyses made in fifty cases after Ewald and after injection of histamin. Fifteen cases showed an achylia gastrica after the Ewald test. Ten of these after the histamin test show considerable quantities of combined free acids; in some instances, normal or above normal values were attained. We showed that histamin stimulates gastric secretion and offers a differential diagnostic means between pseudo-achylia gastrica and achylia gastrica vera.

Dr. Percy B. Davidson, Boston: Regarding the use of the intravenous route, I have the feeling that when injecting a large amount of the dye into the blood stream at one time, the staining of the stomach, as well as of the other tissues, may give rise to the presentation of the dye in the stomach by virtue of diffusion rather than as an active excretion by the stomach tissue. I think that if it is given intramuscularly, the stomach has the opportunity of taking up the dye relatively slowly and excreting it, without the probability of mere diffusion through staining playing any prominent part. Then, as regards Dr. Carlson's question about a definite relationship to urinary output, we have not been able to substantiate this. We feel that the cases under observation showed no definite relationship between gastric excretion and urinary output. Replying to Dr. Carlson's suggestion about the use of a constant stimulus, such as histamin, our technic consisted of the instillation every fifteen minutes of water, which Pawlow has found to be an adequate stimulus to gastric secretion. About the statements of finding the tissue entirely acid in reaction, I would say, from our experience, that, if one examines the tissue after a half-hour following the death of the animal, it will show a uniform acid reaction; but if seen within fifteen minutes, it will give a definite distinction of the acid and alkaline reactions.

THE DIURETIC ACTION OF AMMONIUM CHLORID AND NOVASUROL

IN CASES OF NEPHRITIS WITH EDEMA*

NORMAN M. KEITH, M.D.
CHARLES W. BARRIER, M.D.
Fellow in Medicine, the Mayo Foundation
AND
MARY WHELAN, B.A.
Fellow in Chemistry, the Mayo Foundation
ROCHESTER, MINN.

We have previously reported the successful use of ammonium chlorid in a case of nephritis with edema. We were led to the substitution of ammonium chlorid for calcium chlorid chiefly because of the difficulty in administering the latter. In many cases calcium chlorid caused nausea and vomiting, while these symptoms were much less frequent and troublesome after the ingestion of ammonium chlorid. Gamble, Blackfan and Hamilton,[1] for similar clinical reasons, have administered ammonium sulphate and ammonium chlorid to children with nephritis.

Since our first successful use of ammonium chlorid, this salt has received a thorough trial in different types of nephritis with edema. In many it produced prompt diuresis, with rapid disappearance of the edema. In others, its beneficial effects were temporary and slight. In the latter cases, the organic mercury compound novasurol was administered, and as a rule the resulting diuresis was most striking. These results with novasurol were in harmony with the therapeutic effects previously reported by Mühling[2] and Ulrich.[3] The present series of patients, many of whom had had persistent edema for weeks and months, reveals the importance of the application of these newer diuretics to the treatment of nephritic edema.

CLINICAL FINDINGS ON ADMISSION

Twelve cases of nephritis with edema were studied. The ages of the patients varied from 9 to 69 years. The amount of visible edema varied from a moderate diffuse edema to marked general anasarca. Edema had been present for periods of from ten days to two years. Half the cases fall into the nephrosis type of renal disease; five were of glomerulonephritis, acute and chronic, and one suggested an amyloid kidney. The routine urinalysis showed varying degrees of albuminuria and cylindruria. Arterial hypertension was always present in the glomerular type of the disease, while a moderate retinitis was found in only two cases of glomerulonephritis. In no case was serious cardiac impairment observed. Studies of hepatic function in five cases revealed no definite hepatic insufficiency (Table 1). In regard to renal function the most striking abnormality was the delayed excretion of chlorids and water. The initial phenolsulphonephthalein output varied from 35 to 75 per cent. with the exception of Case 12, in which it was reduced to 5 per cent. In the latter case there was further evidence of marked renal insufficiency, the blood creatinin reaching 9 mg. for each 100 c.c. Retention of nitrogenous substances in the blood, and anemia, were exceptional rather than regular manifestations in these cases. Two patients gave a history of syphilitic infection, and in one of these the Wassermann reaction was positive (Tables 1 and 2).

The patients sought medical advice chiefly because of the presence of edema. Most of them had had it for a considerable time, and it had been resistant to previous methods of treatment.

ILLUSTRATIVE CASE ON ADMISSION

History.—A single woman, aged 44, was admitted to the hospital, April 30, 1924, complaining of generalized edema. Except for an attack of acute tonsillitis at the age of 14, and influenza in February, 1923, she had been in good health. A tonsillectomy was performed in November, 1923. The present illness began seventeen months before admission, with headaches and swelling of the ankles. Following an attack of influenza three months later, the edema gradually increased until it involved the upper legs and abdomen. Eight months after the onset, her face became edematous; she had been in bed almost continuously for one year because of the edema and headaches. Albumin was first found in the urine one year before admission. She had also known of her arterial hypertension for fifteen months. Various diets and other forms of treatment had been tried without benefit.

Examination.—There was definite generalized edema of the whole surface of the skin, most marked in the eyelids, arms, lower trunk and legs. Her weight was 163 pounds (74 kg.). The mucous membranes were distinctly pale. The thyroid was moderately enlarged and contained adenomatous tumors. The heart dulness measured 17 cm.; there was a systolic murmur over the base and apex, and possibly a small amount of fluid in pleural and peritoneal cavities. The systolic blood pressure was 230; the diastolic, 125. The ocular fundi showed moderate retinal arteriosclerosis and neuroretinitis. The urine contained albumin from 1 to 3, at times numerous casts, and occasionally a few pus cells, but no erythrocytes. The blood showed evidence of secondary anemia, the hemoglobin (Dare) being 60 per cent., while the erythrocytes numbered 3,800,000, and leukocytes 7,200. The basal metabolic rate was —13. The blood contained 34 mg. of urea and 1.2 mg. of creatinin for each 100 c.c., and the phenolsulphonephthalein excretion was 40 per cent. in two hours. A diagnosis of chronic glomerulonephritis with nephrosis was made (Case 3, Table 1).

THERAPEUTIC MEASURES

Diet.—It has long been recognized that the diet is a very important factor in the treatment of nephritic edema. Three types of diet have been used in these studies, with some striking results. Each contains 40 gm. of protein and a caloric value of 1,500. Diet 1 is a routine diet for nephritic patients and contains 1,400 c.c. of water and 5 gm. of extra salt (sodium chlorid). Diet 2 is a salt-free nephritic diet and contains 1,400 c.c. of water and no extra salt (sodium chlorid). In Diet 3 the weighed low-salt diet contains 800 c.c. water, and ions as follows: sodium, 0.49 gm.; potassium, 1.76 gm.; calcium, 0.23 gm.; magnesium, 0.20 gm., and chlorin, 0.74 gm. The weighed low-salt diet used in Cases 1 and 2 during the first two periods of study differed from Diet 3 only in low-salt content. This was as follows: sodium, 0.37 gm.; potassium, 2.58 gm.; calcium, 0.30 gm.; magnesium, 0.21 gm., and chlorin, 0.35 gm. All patients were allowed water up to 800 c.c. besides that in the food, to be taken when desired. In certain cases in which all three diets were tried, the patient showed a gradual loss of weight when kept on the weighed, low-salt diet, and a tendency to gain in weight when placed on either of the other two.

---

* From the Division of Medicine, Mayo Clinic.

* Because of lack of space, this article is abbreviated in The Journal by the omission of three tables. The complete article appears in the authors' reprints.

[1] Gamble, J. L.; Blackfan, K. D., and Hamilton, Bengt: A Study of the Diuretic Action of Acids Producing Salts, J. Clin. Investigation **1:** 359 (April 20) 1925.

[2] Mühling, Adolf: Studie über die diuretische Wirkungsweise von Quecksilber; Ausgeführt mit dem organischen Quecksilberpräparat Novasurol, München. med. Wchnschr. **68:** 1447-1449 (Nov. 11) 1921.

[3] Ulrich: Zur Eklampsiebehandlung mit Novasurol, Deutsch. med. Wchnschr. **49:** 885-886 (July 6) 1923. Calomel and other compounds of mercury have been in use in treating renal dropsy since the beginning of the ninteenth century. Richard Bright, in his celebrated monograph on renal disease published in Guy's Hospital Reports in 1836, mentioned their use, but concluded that they often did more harm than good. This treatment has been revived several times since, with occasionally excellent results, but the diuresis is unfortunately usually accompanied by diarrhea.

Table 1.—*Clinical Data*

Case Sex,* Age	Diagnosis	History	Date	Edema	Weight, Kg.	Blood Pressure		Retinal Changes	Blood Wassermann	Hepatic Function	Urine					Phenolsulphonephthalein, per Cent.	Diet	Medication
						Systolic	Diastolic				Specific Gravity	Albumin	Casts	Erythrocytes	Leukocytes			
1 ♂ 23	Chronic glomerulonephritis	Edema first noted eighteen months before; convulsions fifteen months before	11/30/23	4	92.5	205	125	Slight residual	0	.....	1.025	2 to 4	1 to 3	0	1	25	No. 2 No. 3	Calcium chlorid
			2/11/24	0	55.1	125	85											
			6/ 3/24	0	70.0	140	80	Slight residual	...	.....	1.013	2	1 to 3	1 to 3	1	45	No. 2	
			6/11/24	......	69.5	140	80											
			10/23/24	1 to 2	76.0	175	110	......	...	.....	1.013	2	2	1	1	35	No. 3	
			11/ 4/24	0	67.0	150	90											
2 ♀ 22	Chronic nephrosis	Slight edema and albuminuria seven years; moderate edema six months	2/21/24	2	77.6	110	110	0	0	.....	1.027	3 to 4	1 to 3	0	†	75	No. 3	Calcium chlorid
			3/25/24	Trace	70.4	110	70											
			9/27/24	2	75.5	104	80	0	0	.....	1.017	1 to 3	†	0	†	75	No. 3	Ammonium chlorid
			10/15/24	Trace	63.6	110	74											
			3/ 7/25	2 to 3	80.2	116	60	0	0	.....	1.025	1 to 3	0 to 3	0	1	85	No. 3	Ammonium chlorid
			4/20/25	0	61.6	110	75	......	...	.....	.....	....	....	....	....	..	......	Novasurol
3 ♀ 44	Chronic glomerulonephritis	Edema seventeen months, weakness one month	4/30/24	3	74.0	230	124	Moderate	0	Normal	1.015	2 to 3	2 to 3	0	†	40	No. 2	Ammonium chlorid Calcium chlorid
			6/ 7/24	Trace	57.7	190	110	......	...	.....								
			4/17/25	......	62.5	200	100	Mild vascular changes	...	.....	1.015	1 to 3	1 to 2	0	†	40	No. 2	
			5/ 4/25	Trace	57.0	160	100											
4 ♂ 17	Subacute glomerulonephritis	Edema one month	1/22/25	3	72.7	150	100	0	0	.....	1.016	1 to 2	1 to 2	2	1 to 2	35	No. 2 No. 3	Ammonium chlorid
			2/22/25	0	61.0	130	90											
5 ♂ 69	Chronic nephrosis	Edema, oliguria and dyspnea one month	9/23/24	3	75.0	130	85	0	0	Normal	1.026	Trace	† to 1	0	0	45	No. 3	Ammonium chlorid
			10/22/24	0	50.4	120	75											
6 ♂ 9	Chronic nephrosis	Edema and ascites four to five months	11/19/24	1	34.0	90	70	0	0	Normal	1.017	1	1	0	†	40	No. 3	Ammonium chlorid
			12/15/24	0	28.0	90	60											
7 ♀ 26	Acute glomerulonephritis of pregnancy	Edema two weeks	7/24/24	1 to 2	78.6	160	90	0	—	Normal	1.026	2 to 4	1 to 2	0	1 to 2	55	No. 2	Ammonium chlorid
			8/ 5/24	0	68.0	130	90											
8 ♀ 28	Acute glomerulonephritis of pregnancy	Edema and dyspnea one month	7/30/24	2 to 3	80.0	190	145	Moderate	—	.....	1.018	1 to 3	1 to 3	1	1	40	No. 2	Ammonium chlorid
			8/28/24	0	56.3	120	80											
9 ♂ 35	Subacute nephrosis; syphilis of central nervous system	Edema one month	6/19/24	3	68.0	100	55	0	+	.....	1.029	Trace to 1	†	0	1	40	No. 2 No. 3	Ammonium chlorid, calcium chlorid
			7/30/24	0	64.0 54.5*	95	60	......	...	.....	.....	....	....	....	....	..	......	Needle drainage acupuncture
10 ♂ 25	Chronic nephrosis	Edema occasionally six years; marked edema and weakness six months	1/14/25	2 to 3	75.0	135	90	0	0	.....	1.030	1 to 4	1 to 2	0	†	40	No. 1 No. 2 No. 3	Calcium chlorid, ammonium chlorid
			2/12/25	0	57.7	130	80	......	...	.....	.....	....	....	....	....	..	......	Novasurol
11 ♀ 52	Chronic nephrosis; pulmonary tuberculosis nonactive	Edema and ascites; weakness two years	1/19/25	1 to 2	57.3	120	60	0	0	Normal	1.014	0 to trace	1 to 3	0	†	..	No. 1 No. 3	Ammonium chlorid novasurol
			2/14/25	0	48.0	120	75											
12 ♀ 43	Amyloid kidney ?; syphilis 3; syphilitic cirrhosis	Albuminuria and renal insufficiency four years; ascites and edema ten days	11/12/24	2	51.0	120	60	0	0	.....	1.008	Trace to 1	0	0	1	5	No. 2	Ammonium chlorid
			12/ 6/24	1	43.6	110	50											

* In this column, ♂ indicates male; ♀, female.

† Occasional.

The weighed low-salt diet was devised for the purpose of controlling as many factors as possible and still preserving a diet palatable to the patient. The protein and caloric value is the same as that of the nephritic diets. In the latter, only the protein, caloric and water values are controlled, and those are subject to an error of ± 10 per cent., because the portions cannot be accurately served without weighing. The former does not admit of such a large error. The ionic content of the diet is low, the water content is low, the portions of food are weighed, and the fluid is measured, so that in every essential it is the same from day to day.

One patient (Case 1) was kept on the weighed low-salt diet, with no other medication for twelve days, during which time in the hospital his weight decreased from 167½ to 149⅗ pounds (76 to 68 kg.). Table 4 shows the remarkable constancy of the mineral content and total nitrogen of the urine.

It will be noted in Case 2 (Table 5) that during the control period of six days, before the giving of any medicine, after the patient had become adjusted to the diet, there is the same constancy in mineral content of the urine as noted in Case 1. The total nitrogen is about equivalent to that of the diet, and the ratio of urea nitrogen to ammonia nitrogen is quite normal. This case also indicated that a patient can take such a diet comfortably and without any demonstrably harmful effects for a period of forty-four days.

Table 2.—*Changes in the Blood*

Case	Date	Hemoglobin, Gm., per Cent.	Blood			Carbon Dioxid Combining Power, per Cent. by Volume	Chlorin, Mg., per Cent.	Medication
			Urea, Mg., per Cent.	Creatinin, Mg., per Cent.	Uric Acid, Mg., per Cent.			
1	11/30/23	12.9	56	2.0	3.8	..	...	Calcium chlorid
	12/10/23	13.4	34	1.5	3.8	..	...	12/10 to 12/18, 162 gm.
	12/12/23	....	..	...	...	..	...	12/23 to 1/1, 108 gm.
	12/13/23	....	25	...	...	42	300	1/10 to 1/18, 80 gm.
	12/14/23	....	..	...	...	47	...	
	12/20/23	....	29	...	...	..	...	
	12/26/23	....	..	...	...	36	...	
	12/31/23	....	..	...	...	50	296	
	1/15/24	11.6	16	...	...	46	...	
	1/16/24	....	..	...	...	45	386	
	1/26/24	12.7	22	1.5	3.2	..	...	
	2/1/24	....	28	...	...	50	...	
	6/4/24	11.3	43	1.8	4.7	..	367	
	10/24/24	13.8	40	2.2	3.4	54	394	
	10/31/24	14.4	36	2.8	4.4	55	386	
2	2/22/24	14.8	12	1.2	1.7	..	...	Calcium chlorid
	2/26/24	....	..	...	...	52	377	2/25 to 2/29, 40 gm.
	2/29/24	....	..	...	...	55	372	3/7 to 3/11, 30 gm.
	3/17/24	15.3	17	1.2	1.9	..	...	
	10/1/24	15.4	14	1.5	2.1	..	...	
	10/3/24	....	..	...	...	63	368	
	10/8/24	15.8	20	1.4	2.5	43	390	Ammonium chlorid
	10/15/24	....	..	...	...	38	...	10/4 to 10/8/24, 40 gm.
	3/9/25	....	19	1.5	...	55	402	
	3/12/25	....	11	...	...	56	378	
	3/18/25	....	16	...	...	44	330	Ammonium chlorid
	3/21/25	....	..	...	...	36	378	3/13 to 3/30/25, 162 gm.
	3/23/25	....	17	...	...	43	378	
	3/26/25	....	15	...	...	52	384	
	4/2/25	15.6	15	1.1	...	..	...	
	4/6/25	....	27	...	...	56	360	Ammonium chlorid, 137 gm.
	4/13/25	....	23	...	...	41	378	
	4/17/25	....	25	...	...	46	390	4/5 to 4/18/25
	4/18/25	....	..	...	...	51	378	
3	5/1/24	....	34	1.2	2.4	..	311	Ammonium chlorid
	5/12/24	....	35	1.4	2.4	38	...	5/8 to 5/17, 100 gm.
	5/17/24	....	..	...	...	25	...	
	5/20/24	....	40	...	...	..	400	
	6/2/24	....	10	1.2	2.6	59	379	Calcium chlorid
	6/27/24	....	22	...	...	48	...	6/24 to 6/27, 25 gm.
	4/21/25	9.5	24	1.7	2.4	44	420	
4	1/22/25	11.9	36	2.5	2.9	..	...	
	1/24/25	....	..	...	...	..	340	
	1/27/25	....	..	...	...	60	373	
	1/29/25	....	41	...	...	60	...	Ammonium chlorid
	2/2/25	....	46	...	...	40	438	1/29 to 2/7, 50 gm.
	2/6/25	....	..	...	...	24	...	
	2/7/25	....	48	...	...	26	429	
	2/14/25	....	40	2.3	...	30	408	Ammonium chlorid
	2/16/25	....	34	...	...	29	468	2/11 to 2/19, 64 gm.
	2/17/25	....	..	...	...	26	432	
	2/19/25	....	32	...	...	26	420	
	2/23/25	....	47	...	...	48	432	
5	9/24/24	14.9	37	1.3	2.9	..	...	
	9/29/24	....	..	...	...	37	...	Ammonium chlorid
	10/2/24	....	..	...	...	40	392	9/25 to 10/8, 130 gm.
	10/6/24	....	19	1.3	3.3	..	332	
	10/8/24	....	..	...	...	40	400	
	10/10/24	....	18	...	...	..	...	
	10/11/24	....	..	...	...	62	364	
	10/17/24	14.3	..	...	...	..	...	

Table 2.—*Changes in the Blood—Continued*

Case	Date	Hemoglobin, Gm., per Cent.	Blood			Carbon Dioxid Combining Power, per Cent. by Volume	Chlorin, Mg., per Cent.	Medication
			Urea, Mg., per Cent.	Creatinin, Mg., per Cent.	Uric Acid, Mg., per Cent.			
6	11/10/24	15.9	17	1.8	5.5	..	...	Ammonium chlorid
	11/25/24	....	..	1.1	3.2	..	...	11/20 to 11/30, 132 gm.
	11/26/24	....	..	...	...	22	426	
	11/28/24	....	..	...	...	20	...	
	12/1/24	....	..	...	...	46	377	
	12/9/24	....	..	...	...	50	...	
7	7/24/24	11.6	32	1.6	3.3	42	...	Ammonium chlorid
	8/5/24	....	30	1.5	4.7	28	...	8/1 to 8/5, 60 gm.
8	7/20/24	....	71	...	...	..	...	Calcium chlorid
	7/31/24	....	61	1.8	6.2	49	...	3/1 to 3/2, 20 gm.
	8/9/24	13.2	16	1.8	5.3	..	...	Ammonium chlorid
	8/11/24	....	..	...	...	41	...	8/5 to 8/15, 110 gm.
	8/15/24	....	17	...	...	40	...	
9	6/16/24	....	..	...	...	..	...	Ammonium chlorid
	6/19/24	....	60	...	...	..	...	6/23 to 6/30, 80 gm.
	6/23/24	....	23	...	...	60	...	Calcium chlorid
	6/24/24	16.8	30	1.9	2.2	..	...	7/2 to 7/3, 20 gm.
	6/26/24	....	..	1.4	...	..	...	
	6/27/24	....	35	...	...	29	...	
	6/30/24	....	..	...	...	38	...	Ammonium chlorid
	7/9/24	....	..	...	...	43	...	7/8 to 7/12, 40 gm.
	7/10/24	....	..	...	...	40	...	Calcium chlorid
	7/21/24	....	..	...	...	30	...	7/12 to 7/22, 100 gm.
	7/26/24	....	..	...	...	..	478	Ammonium chlorid
	7/31/24	17.3	40	...	...	30	441	7/22 to 7/30, 100 gm.
	8/5/24	....	..	...	...	..	372	
10	1/16/25	....	28	1.1	...	..	...	
	1/20/25	....	36	...	...	..	377	Calcium chlorid
	1/23/25	17.0	..	...	...	..	...	1/21 to 1/25, 76 gm.
	1/27/25	....	26	...	...	30	372	Ammonium chlorid
	1/30/25	....	25	...	...	43	400	1/28 to 2/6, 86 gm.
	2/3/25	14.9	27	...	...	37	412	
	2/5/25	....	..	...	...	56	...	
	2/9/25	....	..	...	...	60	416	
11	1/19/25	....	13	...	...	50	383	Ammonium chlorid
	1/21/25	....	22	1.3	2.5	..	...	1/19 to 1/27, 90 gm.
	1/26/25	....	35	...	...	28	424	
	1/29/25	....	..	...	...	60	373	
	1/31/25	....	29	...	...	38	419	Ammonium chlorid
	2/5/25	....	21	...	...	37	401	2/2 to 2/5, 21 gm.
12	11/13/24	....	114	9.0	6.0	..	...	
	11/18/24	....	109	9.8	...	..	...	
	11/20/24	....	..	...	...	30	...	Ammonium chlorid
	11/24/24							11/19 to 11/23, 25 gm.
	a. m.	....	276	...	...	9	...	(5 gm. daily)
	p. m.	....	178	10.3	2.5	..	...	Kussmaul respiration
	11/25/24	....	166	9.6	4.5	51	...	5 per cent. sodium bicarbonate intravenously
	11/28/24	9.1	170	10.3	4.0	..	...	
	12/3/24	8.9	178	9.8	5.0	..	...	
	12/5/24	....	...	...	...	34	...	

Ammonium Chlorid.—Ammonium chlorid was given by mouth to eleven patients in this series. The doses ranged from 5 to 16 gm. each day for periods of from three to eighteen days. The largest amount ingested was 162 gm. in a period of eighteen days. Ammonium chlorid usually causes a lowering of the alkali reserve of the blood plasma and an increased acidity of the urine. In cases in which the alkali reserve of the blood was decidedly decreased, ammonium chlorid was discontinued until the plasma bicarbonate became normal. In only a single instance, Case 12, was a condition of clinical acidosis induced. The result in this case indicates that ammonium chlorid should be given with great caution in the presence of severe renal insufficiency.

Novasurol.—Novasurol was injected intramuscularly and intravenously in doses of from 0.5 to 2.5 c.c. As a rule, it produced diuresis. It seemed to be more effective as a diuretic after the patient had taken sufficient ammonium chlorid to render the urine decidedly acid. No untoward symptoms were encountered following its use in this series of cases, but a preliminary intramuscular injection of 0.5 c.c. is always given to observe the effect.

CLINICAL RESULTS

In ten of the twelve cases, striking diuretic effects were obtained. In one there was no marked change in the condition, while the other was included because a serious reaction followed the ingestion of ammonium chlorid.

Table 3.—*Changes in Serum and Plasma*

Case	Date	Chlorin (Mg. for Each 100 C.c.*)	Sodium (Mg. for Each 100 C.c.*)	Potassium (Mg. for Each 100 C.c.*)	Calcium (Mg. for Each 100 C.c.*)	Magnesium (Mg. for Each 100 C.c.*)	Carbon Dioxid Combining Power, per Cent. by Volume	Medication
1	10/24/24	371*	326	23.0	8.2	2.2	51*	
	10/31/24	384	310	21.0	8.6	2.1	55	
2	2/25/24	377	354	....	9.5	...	52	
	2/29/24	372	291	....	8.5	...	55	Calcium chlorid
	10/ 1/24	366	358	19.5	...	...	63	
	10/ 8/24	397	339	20.9	...	...	46	Ammonium chlorid
	3/ 9/25	402	365	....	...	...	57	
	4/ 6/25	360	325	....	...	...	56	Ammonium chlorid
	4/17/25	390	315	....	...	...	46	Novasurol
	4/18/25	378	335	....	...	...	51	

* All determinations except chlorin and carbon dioxid made in serum.

Diet.—Spontaneous diuresis followed the administration of the weighed low-salt diet in Case 1 (Table 4, Chart 1). In twelve days the patient lost 13 pounds (6 kg.), and the edema disappeared. One patient (Case 4) during treatment with ammonium chlorid, and a second (Case 11), given both ammonium chlorid and novasurol, showed a gain in weight when the weighed low-salt diet was discontinued. With resumption of the weighed diet, weight was lost, and other beneficial results followed (Charts 2 and 3).

Ammonium Chlorid.—Diuresis, loss of weight, and disappearance of edema followed the use of ammonium chlorid on eight occasions in seven cases (Cases 2 to 8, Tables 1 and 2). Rapid marked diuresis occurred in three cases, while in five the increased elimination was indicated by persistent moderate polyuria. The first results obtained in Case 3 were typical. On admission, April 30, 1924, the patient weighed 162⅘ pounds (74 kg.). She was given a salt-free nephritic diet and a daily fluid intake of from 400 to 1,000 c.c. in excess of fluid in food. In eight days the patient lost 11 pounds (5 kg.), and in a single day the urine amounted to 2,350 c.c. As the diuresis began to lessen, May 7, she was given 8 gm. of ammonium chlorid. This daily dose was continued for the next ten days. The resulting diuresis was striking, and for several days the urine amounted to from 1,800 to 2,200 c.c. The loss of weight during the period of ten days until May 17 was 18 pounds (8.3 kg.). Ammonium chlorid was discontinued, chiefly because the patient had become practically free from edema, and the combined carbon dioxid of the plasma had decreased to 25 per cent. by volume. The patient continued to feel stronger and was dismissed from the hospital, June 2. She was instructed to follow a strict low-salt, low-fluid diet. In spite of her conscientious attempt to adhere strictly to this diet, she slowly began to increase in weight, and slight edema again appeared. She reentered the hospital, June 23, and for three days was held to the former diet. She was also deliberately given 10 gm. of calcium chlorid daily, in order to determine whether ammonium chlorid and calcium chlorid were equally efficacious as diuretics. Diuresis was prompt, and she lost 5½ pounds (2.5 kg.) in three days. The systolic blood pressure was now 190, and the diastolic 110, and she weighed 127 pounds (57.7 kg.). She had actually lost 36 pounds (16.3 kg.) since admission.

The patient returned home, and for ten months was able to carry on her vocation, that of a musician. She kept to a low-salt, low-fluid diet, and whenever edema became noticeable she would take ammonium chlorid, 5 gm. daily, for a week, and the edema would subside.

April 17, 1925, the patient returned for advice regarding a troublesome laryngitis. Physical examination showed only the slightest trace of edema. The weight was 138 pounds (62.5 kg.), the systolic blood pressure 200, and the diastolic 100. On the administration of the salt-free, low fluid nephritic diet for a few days, without other medication, she promptly lost 11 pounds (5.5 kg.), thus reaching a weight of 127 pounds (57 kg.), practically that at the time of her dismissal ten months before (Tables 1 and 2).

The loss of weight associated with diuresis due to ammonium chlorid in this series varied from 9 pounds (4 kg.) in nine days to 50 pounds (22.5 kg.) in fourteen days. The subjective relief experienced by the patient with the disappearance of the edema was often striking. In Case 7, the edema was associated with other manifestations of acute glomerulonephritis of pregnancy, the patient being in the eighth month. She had lost considerable of the edema on dietary restriction of salts and water, but a certain amount still persisted. On four days' treatment with ammonium chlorid, the edema disappeared with a loss of 10 pounds (4.5 kg.). The initial increased blood pressure had also fallen with the diuresis to a normal level. The patient then left the hospital, to return a week later. At that time, she was still free from edema and went through a normal delivery.

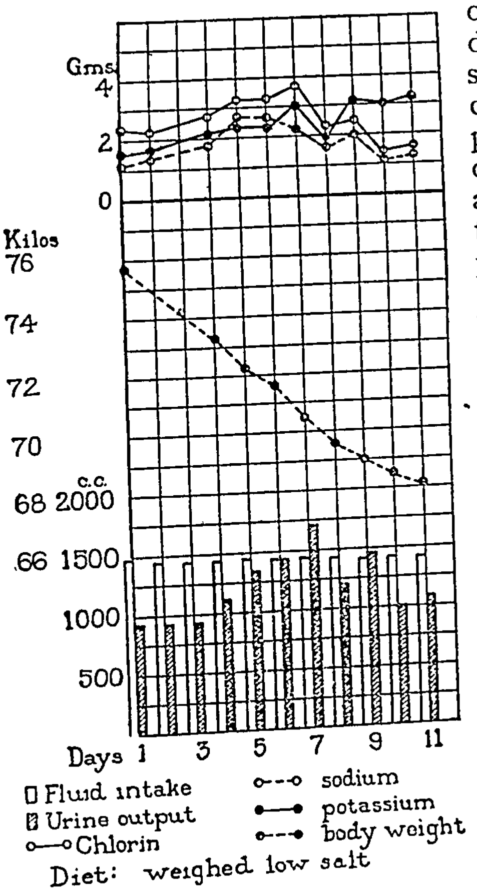


Chart 1 (Case 1).—Spontaneous diuresis: urinary findings.

The results with ammonium chlorid in Case 4 simulate those obtained in Case 1, with calcium chlorid, mentioned in our previous paper. On the first administration there was a moderate response, loss of 9 pounds (4 kg.) in weight in eight days, with still much residual edema. Following the second administration, beginning six days later, the diuresis was definitely more marked, 12 pounds (5.5 kg.) being lost in eight days. Diuresis and loss of weight went on after the ammonium chlorid had been discontinued, until the edema entirely disappeared (Table 6, Chart 2).

The results in Case 9 were disappointing. After a thorough trial of both ammonium chlorid and calcium chlorid under excellent dietary control, marked edema was still present, and only 9 pounds (4 kg.) was lost. Subsequent tapping of the dependent edema in the legs by acupuncture resulted in a loss of 17 pounds (8 kg.) in ten days.

Serious symptoms followed the use of ammonium chlorid in Case 12 (Tables 1 and 2). Symptoms of renal insufficiency had appeared four years before while the patient was undergoing antisyphilitic treatment. On the present admission to the hospital there was evidence of serious renal insufficiency, there being 114 mg. of urea and 9 mg. of creatinin for each 100 c.c. of blood, besides ascites and dependent edema. Half of the usual dose of ammonium chlorid, 5 gm., was given daily for five consecutive days. On the sixth day the patient complained of feeling very weak and being short of breath. She had typical Kussmaul respiration. Immediate determination of the combined carbon dioxid of the plasma revealed that it was reduced to 9 per cent. by volume. The blood urea had also risen from 109 to 276 mg. The patient was treated energetically with alkali, including 1,000 c.c. of 5 per cent. solution of sodium bicarbonate intravenously. She promptly responded to treatment, and on the following morning had no respiratory symptoms, while the plasma showed a normal carbon dioxid capacity. This incident clearly indicates the danger of precipitating a clinical acidosis with ammonium chlorid when marked renal insufficiency already exists.

Ammonium Chlorid and Novasurol.—In Case 2, ammonium chlorid caused diuresis on two separate occasions. Previously, calcium chlorid had brought about a similar effect. In spite of the diuresis obtained on the second administration of ammonium chlorid (the third occasion, indeed, on which one of these diuretic salts had been given), a measurable amount of edema was still present. Novasurol in doses of 0.5 and 1 c.c. failed to increase the urinary volume. Both novasurol and ammonium chlorid were then administered with distinct diuretic effect. With repeated administration of both drugs, the edema subsided and the patient regained her normal weight.

The therapeutic results obtained in Case 10, Table 1, are of great interest (Chart 3). This young man had had marked general anasarca for six months. The edema was generalized, and included a firm brawny induration of the legs. After a trial of calcium chlorid in large doses, as much as 20 gm. daily, there was no visible change in the edema, and the weight remained stationary. With the institution of the combined measures, a weighed low-salt, low-fluid diet, ammonium chlorid and novasurol, the patient lost 37 pounds (16.8 kg.) in fifteen days, and all the edema disappeared. A similar result was obtained in Case 11 (Chart 4). In this instance a preliminary trial of low-fluid, low-salt diet and ammonium chlorid failed to produce a diuresis. Subsequently, when novasurol was added to the treatment the patient lost 16 pounds (7.3 kg.) in eight days.

From these results we can justly state that the immediate therapeutic effects of the diet, ammonium chlorid and novasurol are as a rule very satisfactory. The time since these patients were dismissed is yet so short that it cannot be determined accurately whether certain of them will remain permanently free from edema. Five of the patients have remained free from edema for periods of from two and one-half to seven months. Three patients with previous chronic edema have been able to keep the edema near the vanishing point for several months. In the latter group, we have yet to determine the exact diet, and the frequency and amount of medication necessary to keep the edema under control for prolonged periods.

CHANGES IN THE BLOOD AND URINE

The Blood.[4]—In every case in which ammonium chlorid was given, two characteristic chemical changes occurred in the plasma: a fall in the carbon dioxid combining power, and a rise in the chlorin content. Thus we confirmed the original observation of Haldane[5] that ammonium chlorid, when taken in adequate amount, diminishes the normal alkali reserve in the blood and tissues. Except in Case 12, no untoward symptoms suggesting acidosis were encountered, although quite often the combined carbon dioxid of the plasma was as low as from 22 to 25 per cent. by volume. The chlorin in the plasma rose from 390 to 468 mg. for each 100 c.c., an increase of from 4 to 25 per cent. above the upper limit of the normal. These

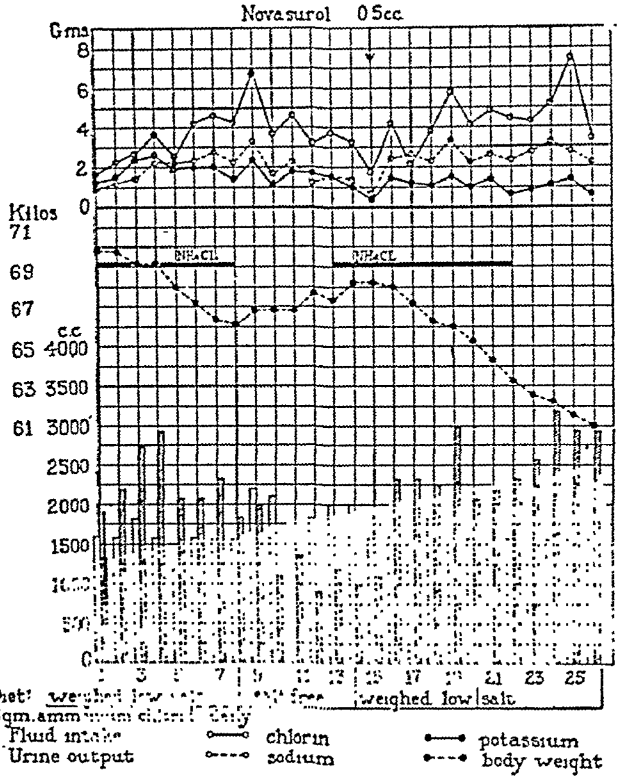


Chart 2 (Case 4).—Diuresis with ammonium chlorid.

---

[4] Bogert, L. J., and Plass, E. D.: I, The Calcium and Magnesium Content of Fetal and Maternal Blood Serum, J. Biol. Chem. **56**: 297-307 (June) 1923. Folin, Otto: A System of Blood Analysis: A Revision of the Method for Determining Uric Acid, ibid. **54**: 153-170 (Oct.) 1922. Folin, Otto; and Wu, Hsien: A System of Blood Analysis, ibid. **38**: 81-110 (May) 1919. Kramer, Benjamin; and Tisdall, F. F.: A Clinical Method for the Quantitative Determination of Potassium in Small Amounts of Serum, ibid. **46**: 339-349 (April) 1921; A Simple Method for the Direct Quantitative Determination of Sodium in Small Amounts of Serum, ibid. **46**: 467-473 (May) 1921; A Simple Technique for the Determination of Calcium and Magnesium in Small Amounts of Serum, ibid. **47**: 475-481 (Aug.) 1921. Osgood, E. E., and Hoskins, H. D.: A New Permanent Standard for Estimation of Hemoglobin by the Acid Hematin Method, ibid. **57**: 107-110 (Aug.) 1923. Smith, Millard: The Determination of Chlorides in Trichloro-Acetic Acid Filtrates from the Whole Blood and Plasma, ibid. **45**: 437-447 (Feb.) 1921. Van Slyke, D. D., and Cullen, G. E.: A Permanent Preparation of Urease, and Its Use in the Determination of Urea, ibid. **19**: 211-228, 1914; Studies of Acidosis: I, The Bicarbonate Concentration of the Blood Plasma, Its Significance, and Its Determination as a Measure of Acidosis, ibid. **30**: 289-346 (June) 1917.

[5] Haldane, J. B. S.: Experiments on the Regulation of the Blood's Alkalinity, J. Physiol. **55**: 265-275 (Aug.) 1921.

striking changes in the carbon dioxid capacity and chlorin content of plasma were present in from five to ten days after the administration of ammonium chlorid was begun, or approximately after the ingestion of from 50 to 100 gm. (10 gm. daily being the usual amount taken). A high concentration of chlorin in the plasma (438 to 468 mg.) occurred in Case 4, during periods when the excretion of chlorin in the urine was distinctly less than the intake.

Determinations of the concentration of several of the ions in the serum before and after a spontaneous diuresis were carried out in Case 1 (Table 3). No striking changes were noted. In Case 2 (Table 3) there was a slight fall in the concentration of sodium after the diuresis of ammonium chlorid. These few estimations indicate that the concentrations of the fixed bases in serum are very little altered by the active diuresis instituted by ammonium chlorid, as pointed out by Gamble, Blackfan and Hamilton.[1] We have also noted similar slight changes in cases of ascites subjected to marked diuresis with novasurol.

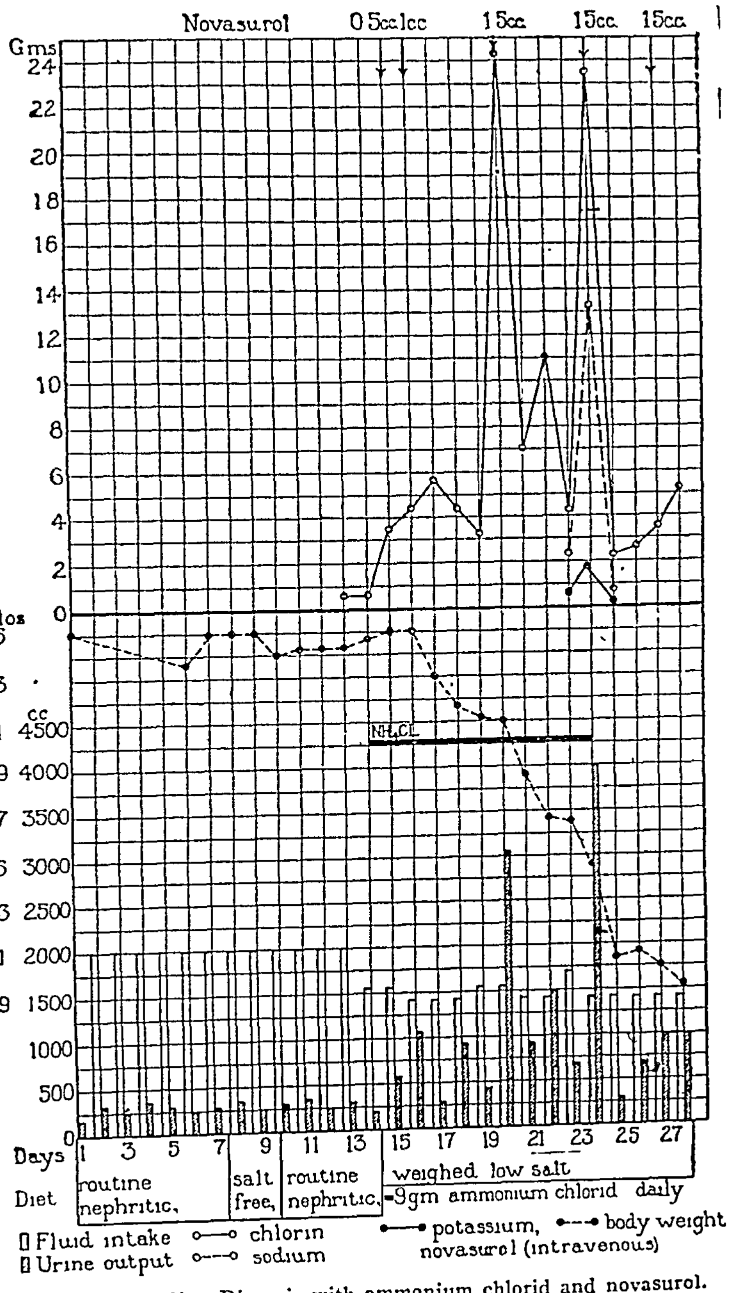


Chart 3 (Case 10).—Diuresis with ammonium chlorid and novasurol.

One would not expect a rise in the concentration of urea in the blood after the ingestion of a large amount of an ammonium salt. A slight rise did occur in Case 11, from 13 to 22 mg., a greater rise in Case 9, from 23 to 39 mg., and a marked rise in Case 12. No such relationship was noted in the remaining nine cases. These results would indicate that a sustained rise in the concentration of urea in the blood after the ingestion of ammonium chlorid can only mean a failure of the renal cells to excrete urea normally. However, the lack of available water in the organism rather than actual renal injury may be a factor causing these increases in blood urea.

Urine.[6]—Chemical studies on the urine included estimation of the hydrogen ion concentration, the ions (chlorin, sodium, potassium, calcium, magnesium and phosphorus), and the total nitrogen, urea and ammonia.

In spontaneous diuresis occurring during the course of renal disease, the hydrogen ion concentration of the urine may vary between 5.0 and 7.7 (Cases 1 and 2, Tables 4 and 5). However, in the diuresis produced by ammonium chlorid in this series of cases the hydrogen ion concentration of the urine was always below 6.0, varying from 5.8 to 4.6, the urine becoming decidedly more acid in from two to six days after the ingestion of ammonium chlorid began. In the course of Case 9, it was necessary to give about 160 gm. of ammonium chlorid or calcium chlorid in sixteen days before the reaction of the urine reached a hydrogen ion concentration of 5.0. This patient failed to show a satisfactory diuresis or loss of weight.

In this series, the carbon dioxid capacity of the plasma decreased at approximately the same time as the hydrogen ion concentration of the urine increased. However, in Case 2 (Table 5), on two occasions, the plasma carbon dioxid was not markedly lowered (43 and 36 per cent. by volume), and the hydrogen ion concentration of the urine increased only from 6.4 to 5.2, even after the patient had been taking 9 gm. of ammonium chlorid daily for from five to eighteen days. It should be noted that during these two periods, the excretion of chlorin in the urine was distinctly greater than that of the fixed bases, when both chlorin and fixed base are expressed in terms of a tenth normal acid or alkali. It should also be noted that the output of ammonia in the urine was markedly increased.

The detailed quantitative studies of the excretion of the different ions in the urine were particularly interesting because of the constant daily diet (low in salt content), and the accurately measured amounts of ammonium chlorid and novasurol. On four occasions during periods of spontaneous diuresis, several of the different ions were determined quantitatively in the urine. In every instance the concentration of chlorin was low, from 0.14 to 0.53 gm. per cent., but the total twenty-four hour output exceeded the intake. The excretion of sodium likewise exceeded the intake, and the concentration varied from 0.13 to 0.37 gm. per cent. Similar urinalyses after the ingestion of ammonium chlorid were carried out during five periods in three patients. In Case 2, first period (from Oct. 4 to Oct. 8, 1924), the chlorin concentration rose to 0.98 gm. per cent., and the total excretion exceeded the intake by 5 gm. But under similar conditions at a later date, in Case 2, second period (from March 14 to May 17, 1925), and in Cases 4 and 11, the concentration remained low and the total output being much less than the intake, indicated a retention of chlorin. During these periods of retention of chlorin, on the contrary, the excretion of sodium, with only a single exception, greatly exceeded the intake. The intake and output of potassium balanced closely except in Case 11, in which there was a like retention of all three ions, chlorin, sodium and potassium. The daily excretion of potassium in these cases showed much less variation than the sodium.

---

[6] Bogert and Plass (Footnote 4). Briggs, A. P.: A Modification of the Bell-Doisy Phosphate Method, J. Biol. Chem. **53**: 13-16 (July) 1922. Gillespie, L. J.: Colorimetric Determination of Titration Curves Without Buffer Mixtures, Am. Chem. Soc. Jour. **42**: 742-748, 1920. Harvey, S. C.: The Quantitative Determination of the Chlorids in the Urine, Arch. Int. Med. **6**: 12-18, 1910. Tisdall, F. F., and Kramer, Benjamin: Methods for the Direct Quantitative Determination of Sodium, Potassium, Calcium and Magnesium in Urine and Stools, J. Biol. Chem. **48**: 1-12 (Sept.) 1921. Wong, S. Y.: The Use of Persulfate in the Estimation of Nitrogen by the Arnold-Gunning Modification of Kjeldahl's Method, ibid. **55**: 427-430 (March) 1923.

The striking point regarding the excretion of phosphates during diuresis was the fall in concentration with a constant total output. The amounts of calcium and magnesium excreted daily were small and showed considerable variation both in concentration and total excretion. On account of the small amounts of these ions in the urine, marked relative changes make little difference in the total excretion of bases.

Calculating the chlorin, and then the sodium and potassium together in terms of cubic centimeters of tenth normal acid or alkali, the quantitative relationship between them becomes of interest. In the spontaneous diuresis (Case 1, Chart 5), there was a marked preponderance of the two bases over chlorin. A similar, but lesser, preponderance of these bases was seen in the diuresis produced by ammonium chlorid (Case 4, Chart 5).

With the diuresis following the injection of novasurol there was no constant change in the urinary hydrogen ion concentration. There was invariably a rise in the concentration and total excretion of sodium, a rise in the total output of chlorin, with usually a rise in its concentration. As a rule there was no definite increase in the excretion of potassium. The excretion of phosphate was characteristic: a fall in concentration with no change in the total excretion. Novasurol may cause a rise also in the total amount and concentration of calcium (Table 5). In Table 5 is shown the approximate total fixed base as calculated from the sum of the sodium, potassium and calcium is shown in Table 5. With full novasurol diuresis, the excretion of the bases sodium and potassium together was approximately equivalent to that of chlorin (Case 10, Chart 5), when calculated in terms of tenth normal acid or alkali.

The total nitrogen determined in the urine, for a control period of six days in one case and eight days in another, averaged 6.57 gm. and 6.2 gm., respectively. The 40 gm. of protein in the diet yields 6.3 gm. of nitrogen. The same state of nitrogen equilibrium was reached on the fifth day by a normal person on the weighed low-salt diet.[7]

During part of the period of study of Case 2 (Table 5), urea nitrogen and ammonia nitrogen as well as total nitrogen were determined in the urine. It was found that, when ammonium chlorid was given, the total nitrogen increased to include approximately the 2.3 gm. nitrogen which 9 gm. of ammonium chlorid would yield. The average total nitrogen in the urine during fifteen days was 8.76 gm.; the nitrogen in the diet and that in ammonium chlorid together amounted to 8.6 gm. There was a slight but distinct increase in both the total urea and the ammonia nitrogen. The increase in ammonia nitrogen was most marked. It has been noted also in this patient, Case 2, that there is a tendency toward a decrease in ammonia nitrogen both in concentration and in total amount during diuresis produced by ammonium chlorid and novasurol.

COMMENT

The therapeutic objective in cases of edema is the removal of excess fluid from the body. When this is brought about, an increased excretion of urine or diuresis always occurs. Diuresis may start spontaneously without, but more usually after, dietary restriction or after the exhibition of certain drugs. Besides the increased volume of urine, the excretion of sodium is invariably increased, and the output greatly exceeds the intake. There is usually also a loss of chlorin and other ions, but not so constantly or invariably as that of sodium. Loss of sodium is thus a characteristic phenomenon associated with diuresis and loss of edema.

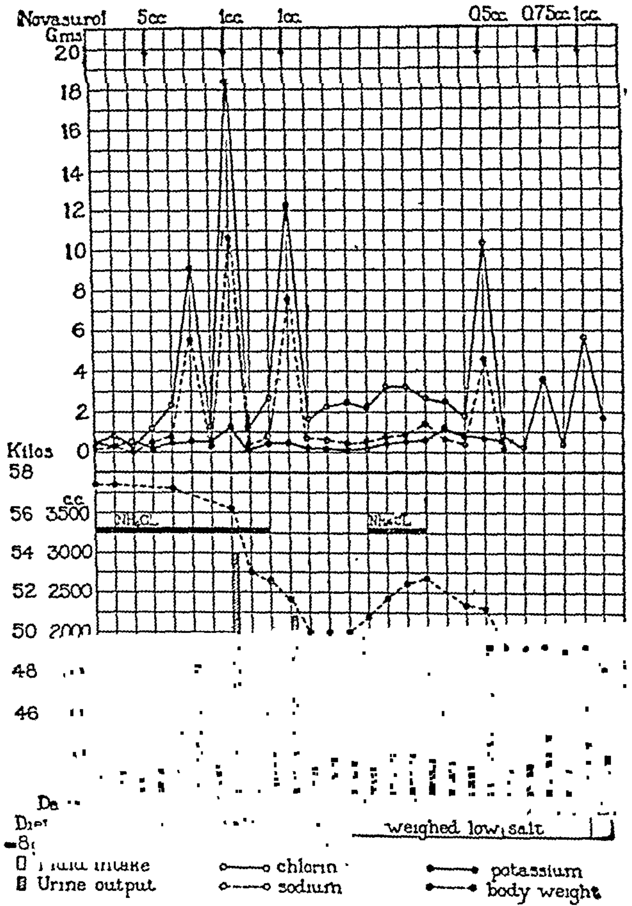


Chart 4 (Case 11).—Diuresis with ammonium chlorid and novasurol.

Meyer and Cohn [8] and Blum [9] were the first to emphasize the importance of the excretion of sodium when loss of body water occurred.

Spontaneous diuresis occurred in Case 1, and the findings agree with previous results obtained by Atchley, Loeb and Benedict,[10] and by us.[11] Here restriction to the weighed low-salt, low-fluid diet led to the onset of a satisfactory diuresis. The importance of this dietary measure was also seen during the treatment of two patients (Table 6, Charts 2 and 4). Further studies are contemplated to determine the relative importance of the low-salt and low-fluid content in this diet.

---

[7] Nitrogen determinations were not made on the stools. Even allowing for 10 per cent. elimination by the stools, this does not affect the general result.

[8] Meyer, L. F., and Cohn, S.: Klinische Beobachtungen und Stoffwechselversuche über die Wirkung verschiedener Salze beim Säugling, Ztschr. f. Kinderh. 2: 360-419, 1911.

[9] Blum, L.; Aubel, E., and Hausknecht, R.: Calcium Salts in Nephritis, Bull. et mém. Soc. méd. d. hôp. de Paris 46: 206-214 (Feb. 3) 1922.

[10] Atchley, D. W.; Loeb, R. F., and Benedict, E. M.: Physiochemical Studies of Calcium Chlorid Diuresis, abstr., J. A. M. A. 80: 1643-1644 (June 2) 1923.

[11] Keith, N. M.; Barrier, C. W., and Whelan, Mary: Treatment of Nephritis and Edema with Calcium, J. A. M. A. 83: 666-670 (Aug. 30) 1924. Keith, N. M., and Whelan, Mary: The Effect of Novasurol on the Composition of Blood and Urine, Am. J. Physiol. 72: 195-196, 1925.

Detailed studies of the diuresis brought about by ammonium chlorid and the low-salt, low-fluid diet were carried out in Case 4 (Table 6). The urinary excretion of water and sodium was increased in spite of evidence of retention of chlorin. The proportionate loss of sodium over chlorin was not so marked as found in Case 1, with the spontaneous diuresis (Chart 5). These findings would indicate that the edema fluid in Case 4 was more difficult to dislodge, yielding only after the exhibition of the combined effects of diet and ammonium chlorid. The exact importance of the decreased alkali reserve and increased chlorin content of the tissues as factors in bringing about the diuresis is difficult to appraise. Both changes occurred in Case 9 without bringing about diuresis. This result suggested a renal block. Only slight changes occurred when diuresis and loss of weight took place in Case 2. The latter finding, together with a simultaneous, proportionately high excretion of urinary chlorin and ammonium with a low fixed base, would indicate the possibility that the ammonium radical was not being readily converted into urea, but excreted in the urine as ammonium. Such an explanation suggests that ammonium chlorid may, in certain cases of edema, act as a neutral salt.

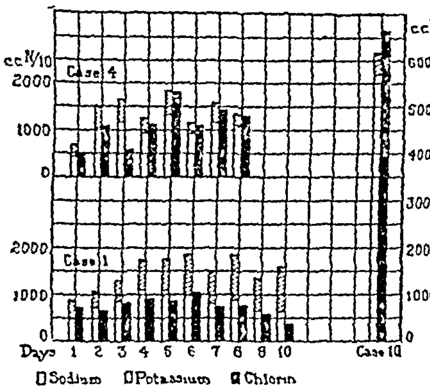


Chart 5.—Chlorin and base excretion in urine.

The specific effects of novasurol were clearly demonstrated in Case 11. The diet and ammonium chlorid failed to produce a diuresis. Both chlorin and sodium were being retained. The administration of novasurol brought about a prompt and large excretion of water and of both chlorin and sodium in amounts closely approximating their equivalent proportion when calculated in terms of tenth normal solution of acid or alkali (Chart 5). We have evidence in this and also in a further series of cases that novasurol, even if previously ineffective, will produce a diuresis after the ingestion of ammonium chlorid. In certain cases, *the increase in chlorin rather than the decrease in alkali reserve in the tissues appears to be the important factor in producing the combined effect.*

SUMMARY

A group of patients having nephritis with edema, selected on account of their inability to excrete salts and water, were treated with controlled diets, ammonium chlorid and novasurol. In most cases the immediate results were very satisfactory. The combined effects of diet, ammonium chlorid and novasurol produced beneficial effects when singly each was ineffective. Thus therapeutic results, never previously possible, have been obtained.

Diuresis, in cases of edema, is associated with increased excretion of sodium whether it occurs spontaneously or following the exhibition of ammonium chlorid or novasurol.

POOR SURGICAL RISKS

LABORATORY ASSISTANCE IN PREPARATION OF PATIENTS FOR OPERATION AND IN THEIR POSTOPERATIVE CARE *

WILLIAM THALHIMER, M.D.
MILWAUKEE

In this summary, all that can be attempted is a brief discussion of some of the results obtained by laboratory investigations of several types of patients for whom the hazard of a major surgical operation is more serious than for the average patient. This discussion will be of laboratory data, their significance, and their indications for certain preoperative and postoperative treatment of these patients.

In the beginning, let me confess that nothing new is presented, but, on the contrary, I must recall something which is very old and with which all are familiar. When Lister had perfected his antiseptic technic, the surgeons who visited his clinic are said to have commented, "This elaborate method is possible in Lister's operating room, because of the unusual energy, care and enthusiasm present there; but such infinite care of detail will not be possible in other surgeries." This opinion has been completely disproved by experience. Today there is scarcely a hospital, no matter how inadequate it may be in a number of directions, that hasn't a thoroughly reliable operating room technic. The probable reason for this is that asepsis is a surgical necessity, and what is necessary is accomplished. Since most patients will recover after proper aseptic operations, regardless of the kind of postoperative care they receive, or of attention to the functional ability of the heart, kidneys or other organs, it is unfortunately true that these matters do not receive the consideration they should. And yet if a complicated operating room technic can be maintained, efficient laboratories and postoperative care can be maintained also. Whereas surgery will probably never again achieve the degree of progress made possible by Lister's discoveries and work, it can surely accomplish many more cures than it does today, by extending the same degree of accuracy found in the modern operating room to the hospital laboratory and to the preoperative and postoperative sick room.

The sort of patients under discussion are not those facing an emergency operation, for with these there is no choice, since their condition demands immediate surgical treatment. There is also no time for a thorough laboratory investigation, and usually a lack of time to attempt the improvement of the patient's condition and of his chances for resisting his disease and withstanding the effects of the anesthesia and operation. Nevertheless, some of the kinds of treatment to be discussed are particularly applicable to the so-called "emergency case," especially after operation.

The group of patients with which we are especially concerned in this symposium is made up of persons who need operative treatment either to save their lives or to correct a condition that interferes seriously with their health or activity. Their surgical disease does not demand urgent operative treatment but allows time for careful study and preparation for operation.

---

* From the laboratories of Columbia Hospital.

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

Under methods of study are included careful clinical investigation (which is most important) and laboratory aids with chemical, bacteriologic, physiologic, roentgenologic, electrocardiographic and other methods.

In general, the person who is confronted with a greater than average hazard in submitting to a major surgical procedure (I have in mind particularly abdominal operations) is beyond middle age, and possesses a heart with subnormal functional ability (myocardial inefficiency) and kidneys whose function is also compromised. Special subgroups will include patients of any age with mild or marked anemia; with dehydration because of either diarrhea or considerable vomiting; with incomplete pyloric or intestinal obstruction; with either alkalosis or acidosis, or with any number of other conditions that cannot be classified conveniently.

I wish to make a plea not only for the study of these patients with laboratory methods, but especially for the interpretation of laboratory findings by a person who is capable of interpreting them, be he a surgeon, an internist or a laboratory worker. Persons with this ability are not numerous, for such is acquired only by clinicians who are trained in the laboratory and who keep in touch with this field, or else by laboratory workers who are also clinicians.

This special ability, it seems to me, is particularly necessary in interpreting the degree of seriousness of cardiac abnormalities. The usual classification of cardiac disease into organic and functional is satisfactory, but the common opinion that an organic heart disease is a more serious handicap to a person about to undergo an operation than a functional heart disease is undoubtedly erroneous. The reason for this is that most surgeons believe that cardiac abnormalities which can't be detected by ordinary physical examination are not organic but functional, and should be treated with the same contempt which they give to functional nervous diseases. As a matter of fact, it is immaterial how loud a murmur a patient's heart makes so long as this lesion is compensated, and the heart has sufficient reserve to function adequately during the stress of a major operation and the postoperative period. With the possible exception of severe disease of the aortic ring, it is my opinion that patients with compensated cardiovalvular disease withstand operations without undue risk, provided the myocardium is functioning adequately. It has been my experience that such patients pass through their operations smoothly, and do not succumb to cardiac failure after the operation unless the heart is exhausted by other factors, chief of which is renal failure. In other words, most postoperative cardiac deaths are postoperative renal deaths.

The cardiac reserve can be determined by various safe procedures which test the effect of given amounts of work on cardiac function, blood pressure, vital capacity, etc. The most important laboratory examination is made with the electrocardiograph. It is being realized more and more that the electrocardiograph is not merely a research instrument, but that it gives accurate knowledge of the functioning of the heart. This has been pointed out by Wilson.[1] All patients of middle age or over should be studied with this means before operation, and those who show a marked lengthening of conduction time should be operated on only after thorough digitalization, and then only if the surgical treatment is imperative. Many such patients stand an operation well, but about twenty-four hours later, their heart rate begins to increase, and continues to increase till the compromised myocardium becomes exhausted. This change in conduction may be caused by endocardial sclerosis, and the arborization block of Oppenheimer and Rothschild[2] by fibrosis in the myocardium, or other lesions, practically all of which are due to coronary artery disease. Myocardial weakness, unsuspected clinically, is at times revealed by an electrocardiogram. Geist[3] considers that efficiency of the myocardium is so important that in a large group of patients he has given digitalis as a routine before operations, and he reports fewer postoperative pulmonary complications, and a smoother convalescence. If digitalis is given, enough must be administered to cause its physiologic effect on the heart; that is, complete digitalization. Fortunately, we know that this can be accomplished very rapidly by giving one of a number of preparations intravenously in large doses. At Columbia Hospital we use the ordinary tincture of digitalis.

Probably the factors which influence the postoperative course of patients more than any others are those which have to do with renal function. The only patients we need consider here are those for whom special methods or special clinical acumen are necessary, in order to discover renal insufficiency before operation and to render the proper kinds of treatment. Although an increased blood pressure does not necessarily indicate organic renal disease, it will be found that most patients with this condition show subnormal renal function after operation. The simplest test for kidney function, and one of the best, is the urea concentration test of Mosenthal. The phenolsulphonephthalein test is useful in some instances, but not in all. Chemical examination of the blood is most important, for evidences of retention of nonprotein nitrogenous substances (urea, creatinin, etc.) are of great significance. Furthermore, the determination of the quantitative secretion of urea is not given the attention it deserves.

It is my conviction that the most important means of effectively maintaining sufficient diuresis is by furnishing the body with sufficient water. If this is done, and granting that the circulation is adequate (as it usually is), that the oxygen carrying power of the blood is normal so as not to compromise the actively functioning kidney cells by oxygen want, and that sufficient carbohydrate is being furnished to the body so as not to cause it unnecessarily to break down its own protein and so throw into the circulation an excess of nitrogenous substances, then one has given the kidneys their maximum opportunity, and various so-called diuretics probably will not give further help. It might seem radical to state that the simplest and safest way to give fluids to a very sick patient is by intravenous injection. Nevertheless, I believe there are some good reasons for not giving by mouth or by rectum the large amounts of fluids that may be necessary to these patients, since with these patients the absorption by either of these routes is questionable, and either manner of administration at times causes vomiting and gastric and intestinal distention. Fluids can be given very satisfactorily by duodenal tube to some patients, but it is at best a distressing maneuver for the patient. The patients suffer less pain from an intravenous than from a subcutaneous injection. Fluids can be, and should be given slowly into the vein at a rate of from 200 to 500 c.c. an hour. The continuous drip method of Matas[4] is excellent, though it is our custom to give fluid at intervals, as is indicated by the condition of the patient.

---

[1] Wilson, F. N., and Herrmann, G. R.: Ann. Clin. Med. **3**: 419 (Dec.) 1924.

[2] Oppenheimer, B. S., and Rothschild, M. A.: Electrocardiographic Changes with Myocardial Involvement, J. A. M. A. **69**: 429 (Aug. 11) 1917.

[3] Geist, S. H.: Am. J. Obst. & Gynec. **4**: 30 (July) 1922.

Many of the patients whose cases we are discussing who have only a slight degree of anemia, such as would cause no concern in the average patient, should receive transfusions both before and after operation. A normal supply of oxygen to all tissue cells, as well as to those of the kidneys, is of extreme importance and can be maintained by the simple procedure of one or more transfusions. Ward,[5] and others, have emphasized this, and their work cannot be too highly recommended. No particular method of transfusion can be recommended, except that unchanged blood is preferable and is less likely to cause a reaction than citrated blood.

Next in importance to these factors is the furnishing of adequate carbohydrate nourishment to the patient. Again, this can be accomplished safely by the intravenous route. Instead of the usual physiologic sodium chlorid solution, we give 100 gm. of dextrose a day in the form of either a 5 or 10 per cent. solution. Sometimes twice this amount is given. By this means, the most important energy giving constituent of food is supplied and is delivered into the circulation, where it is carried immediately to all the cells for either use or storage. Sparing the breakdown of body protein, when sufficient carbohydrate is available, has been mentioned. This has been demonstrated during acidosis by Harding and Potter.[6] We have also gathered the impression, though this cannot be proved as yet, that this procedure improves the action of poorly functioning hearts. Apparently the force of the cardiac contraction improves, and as a result the rate decreases. Our only explanation is that the glucose supplies the most essential metabolite used in the mechanism of muscle construction.

In addition to the foregoing, glucose, given at the rate described, produces one other important result. A small amount appears in the urine. This need not be feared, as it causes no injurious effect, but on the contrary a beneficial one. Next to water, glucose is the best diuretic available. Therefore, in patients in whom maintainance of renal function is of paramount importance, this diuretic effect of glucose is advantageous.

One group of patients present themselves for operation after they have been vomiting for a longer or shorter period of time. These patients are usually in extremely poor condition and have either an acidosis or an alkalosis. The presence of acetone and diacetic acid in the urine (ketonuria) usually indicates an acidosis, but these substances may be present during alkalosis. Other signs of acidosis are a lowered carbon dioxid combining power of the blood plasma (as determined by Van Slyke's method), diminished tension of carbon dioxid in the alveolar air (as determined by Marriott's method), and lowered p_H of the blood (as determined by Cullen's method). The most important definite signs of alkalosis are an increased carbon dioxid combining power of the blood plasma and an increased p_H value of the blood. None of these laboratory tests are difficult; but they demand an experienced and reliable chemical laboratory worker.

The seriousness of acidosis has been recognized for a long time, but only in recent years has the frequency and seriousness of alkalosis become known. It is of extreme importance to differentiate between these two conditions, as the proper treatment for one intensifies the other. Acidosis is the more common of the two, and yields to the same treatment when present either before or after operation.

At this point, mention can be made of the importance of the choosing of the kind of anesthetic to be used. It is always important to choose one that is least likely to intensify or create acidosis. Local anesthesia, or ethylene with an ample supply of oxygen, are to be given first choice. Next in order are nitrous oxid and oxygen and, finally, ether. The limitation of time forbids discussion of the reasons for this selection.

One of the most important causes, if not the chief cause, of acidosis is the body's deficient utilization of carbohydrate. This happens for different reasons; in diabetes, because of an abnormality in the mechanism of carbohydrate metabolism; in anoxemia, because of a deficiency of oxygen supplied to the tissue cells (as shown by Loevenhart and his co-workers[7]); in starvation, as from vomiting or other causes, because of an insufficient supply of carbohydrate nourishment, and so on. The essential cause of the acidosis must be treated; but since this is usually a deficient utilization of carbohydrate, in most instances all that is required is to furnish carbohydrate to the tissues, and, if necessary, aid the mechanism of utilizing this food. The carbohydrate can be most rapidly and easily furnished by giving a solution of glucose intravenously. Its utilization can be speeded up, even in the nondiabetic patient, by giving insulin hypodermically at the same time. Acidosis due to insufficient utilization of carbohydrate can be cleared up in a few hours by these means. Alkali therapy is necessary only for the condition of noncompensated acidosis, and probably this is its only indication.

A discussion of the treatment of anoxemia requires more time than is at my disposal.

Alkalosis is most commonly encountered in patients with marked pyloric or intestinal obstruction and vomiting, causing a loss of hydrochloric acid, or after excessive dosage with sodium bicarbonate. Alkali therapy and gastric lavage are definitely contraindicated, and instead of hydrochloric acid, ammonium chlorid or sodium chlorid should be given. This condition will be discussed by Orr and Haden.[8]

Another field for the use of the injection of glucose intravenously and insulin hypodermically is that formed by patients who have not withstood an operation well or whose postoperative condition is poor, even in the absence of an appreciable acidosis. We have been using this method of the treatment for two years at Columbia Hospital in this group of patients. This condition is not that of shock; in fact, we rarely see a true condition of operative or postoperative shock. Nevertheless, the poor general condition of these patients often improves quite rapidly following this treatment. The slow intravenous injection of a solution of glucose, at the rate already advised, has not, in my experience, caused any immediate rise in blood pressure. The improvement in a patient's condition cannot be the effect of an increase in blood pressure, but, on the contrary, any rise in blood pressure that may occur will be the result of the patient's general improvement. Therefore, one cannot expect to increase the blood pressure in true shock by this treatment, nor do I advise this manner of treatment for shock. The problem of shock is a separate subject, and cannot be discussed here.

---

[4] Matas, Rudolph: Ann. Surg. **79**: 643-661 (May) 1924.

[5] Ward, G. G.: Wisconsin M. J. **23**: 489 (Feb.) 1925.

[6] Harding, V. J., and Potter, C. T.: Brit. J. Exper. Path. **4**: 105 (June) 1923.

[7] Loevenhart, A. S.; Brunquist, E. H., and Schneller, E. J.: J. Biol. Chem. **62**: 93 (Nov.) 1924.

[8] Haden, R. L., and Orr, T. G.: J. Exper. Med. **38**: 55 (July) 1923; **39**: 321 (Feb.) 1924; **41**: 107 (Jan.) 1925; Use of Sodium Chlorid in Treatment of Intestinal Obstruction, J. A. M. A. **82**: 1515 (May 10) 1924; Surg., Gynec. & Obst. **37**: 465 (Oct.) 1923.

In this brief summary, only a few of the most important considerations could be presented. The recommendations that are indicated can be summed up finally in a plea which has been made many times before, and by much abler supplicants than I. It should have produced its effect wherever medicine and surgery are practiced. Unfortunately, except in a comparatively few large clinics, it has fallen on unresponsive ears.

Allow me to put in another plea for a realization that impaired physiologic functions of patients demand as much consideration and treatment as their organic diseases. This can be accomplished by developing a physiologic point of view, and using physiologic methods of study and treatment. Finally, this will be possible only by the expenditure of intelligent energy, and when surgeons are sufficiently far sighted to secure at all times the close cooperation with them of internists, laboratory workers, interns and nurses.

929 Maryland Avenue.

ABDOMINAL SURGERY IN DIABETES *

DANIEL FISKE JONES, M.D.
LELAND S. McKITTRICK, M.D.
AND
HOWARD F. ROOT, M.D.
BOSTON

It is undoubtedly true that the diabetic patient must be included among the bad risks in surgery, but is it not time for us to revise our estimate of the danger of operations to these patients? Our impressions are influenced too much by the results of surgery on diabetic patients previous to the work of Allen, Joslin and others. It should be remembered that our impressions are obtained largely from our experience with operations for carbuncles, gangrene and abdominal operations of dire necessity, and we should be well aware, from our experience with many other operative procedures, that the mortality in operations that are done only as a last resort is very high.

Those who gave special attention to diabetes deserve much credit for their treatment of surgical diabetes before the introduction of insulin, but their methods had not permeated very deeply into the profession. It has taken a great discovery, insulin, to stimulate the interest of the medical profession in these cases. This opportunity should therefore be grasped to readjust ourselves to a proper appreciation of the needs of this group of cases.

Some of the reasons why diabetic patients are bad surgical risks are:

1. The majority are old, and already damaged.
2. Their resistance to infections is low.
3. Tissues do not heal well in the presence of faulty carbohydrate metabolism indicated by a high blood sugar.
4. Serious diabetic conditions frequently develop following operation.

Joslin shows by several series of collected cases that 51 per cent. of the cases of diabetes occur between the ages of 50 and 70 years. In addition to this the diabetes has already damaged their circulatory system and kidneys to a much greater extent than is the case in the average person of that age. We must therefore compare the results of surgery in these cases with a group, 51 per cent. of whom average 60 years old, and in whom there is a high percentage of damaged circulatory systems and kidneys. That these patients have a lowered resistance to infection cannot be denied. While this has not been proved experimentally, it is an undoubted clinical fact. But it must be remembered that our impressions here are gained largely from our experience with infections of the extremities in which the circulation is damaged to a large extent. We have experimental[1] as well as clinical proof that wounds do not heal well in the presence of a high blood sugar. While it is true that the use of insulin improves the utilization of carbohydrate and for that reason permits wounds to heal that would not have healed formerly, we must not be led into believing that insulin alone will improve the circulation of the extremities with advanced arteriosclerosis. We believe that there are no clinical data to warrant this belief. In abdominal surgery, we need have no fear of an impaired circulation locally, and with insulin no fear of the wound not healing, except in the presence of infection.

The possibility of serious diabetic complications following operation is always present, but fortunately we are equipped at the present time with various means of preventing these conditions. These are: (1) comprehensive cooperation between the surgeon and the internist; (2) careful preoperative study and preparation; (3) judicious selection of the anesthetic and the operation; (4) vigilant postoperative care by the internist as well as by the surgeon, and (5) insulin.

It must be evident to all that the surgeon cannot possibly have the experience in the care of diabetic patients that the internist has, and it would be a useless duplication of effort for him to attempt it, provided an experienced internist and, one might add, one interested in these cases, is available. It might well be said by the internist that it is just as important to have a surgeon who is interested in these cases. At least, let us hope that we will never return to the days when the family physician thought he knew how to care for these patients and felt that it was useless to attempt any surgery on them. There are still, we are sure, many appendix and gallstone patients not operated on because of the feeling among physicians that operations should not be performed on diabetic patients. In fact, in a series of necropsies reported by Warren and Root, gallstones were present in six patients out of twenty-one over 25 years of age, and chronic cholecystitis with obliteration of the gallbladder in a seventh.

The anesthesia used is of the greatest importance in diabetes. Not only must we select an anesthetic that will do the least possible harm to the diabetic condition, but also we must select one that will permit us to do the necessary operation with the least possible injury to the tissues. Ether, which is the anesthetic of choice for the great majority of surgeons, undoubtedly permits us to operate with the greatest ease and to do the least possible injury to tissues, but it is, we

---

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Lewis, M. R.: J. Exper. Med. 35: 317 (March) 1922.

feel convinced, a dangerous anesthetic to use in diabetes. Because at the Mayo Clinic they can use ether with the excellent results which they report, we should not attempt to follow their example unless we can do the operation in as short a time with as little ether, and with the same care in handling tissues as they. Ether administered to normal persons or animals gives rise to a hyperglycemia and acidosis. Sansum and Woodyatt[2] have shown this increased blood sugar to have its origin in liver glycogen. Bloor[3] found a rise in blood fat during ether anesthesia of normal dogs, varying from 40 to 100 per cent. Moreover, it is a well known clinical fact that there is more nausea and vomiting after ether than after nitrous oxid and oxygen, spinal anesthesia or local anesthesia. The reduction of nausea and vomiting to a minimum is of great importance because of its interference with the intake of food and liquids. Vomiting increases the tendency to ketosis. We are of the opinion, therefore, that Joslin's statement still holds good—that "ether anesthesia is a burden which a light case of diabetes may easily bear, which may change a moderate to a severe case, and to a severe case prove fatal."[4] If we are to use a general anesthetic, nitrous oxid or ethylene and oxygen is the anesthetic of choice. We should place one condition on its use; that is, the patient must be so anesthetized that the operation can be carried out without trauma to the abdominal wall or viscera. This can be accomplished at times by the addition of local anesthesia, but at times the addition of ether is necessary. If the anesthetist thinks the patient will require much ether to control him, we much prefer to start the operation with local anesthesia, using a light ether anesthesia to control the patient if necessary during the difficult part of the operation. Then we remove the ether and finish the operation with local anesthesia alone. This method has proved very satisfactory in certain gallbladder operations.

Spinal, local, paravertebral, sacral and parasacral anesthesia should be the anesthesia of choice in diabetic conditions. The effect of the anesthetic is reduced to its lowest possible level by these methods, and undoubtedly they permit a higher percentage of recoveries than any other method. If one would be convinced of the foregoing statement, he should employ the various methods of anesthesia in a series of cases.

Probably the most important factor in the outcome of surgical conditions in diabetic patients is the preoperative and postoperative care, which we believe in placing largely in the hands of the internists—and an internist interested in diabetes. The routine care of the patients, preoperative and postoperative, as carried out at the New England Deaconess Hospital under Dr. Joslin's care is taken largely from a paper on surgical treatment of gallbladder disease in diabetes,[5] with a few changes made to bring it down to date.

ROUTINE CARE

In preparing the diabetic patient for operation, radical procedures designed to render the patient sugar-free may cause actual damage by depleting the glycogen content of the liver and other tissues, and thus impoverishing a valuable protective agency. It may even be desirable to have small amounts of sugar in the urine at the time of operation, for then depletion of the carbohydrate reserve seems less likely to occur.

Acidosis is much more dangerous than large amounts of sugar in the urine. Unless operation is imperative, it should be delayed until the acidosis is controlled. In emergency cases, operation may be successfully performed in the presence of acidosis, but the responsibilities of the surgeon and internist are thereby greatly increased and the prognosis proportionately poorer. From the point of view of operability, diacetic acid in the urine is a satisfactory index of acidosis.

Adequate fluid intake is essential. The patient's tissues should be neither dehydrated nor water-logged, for either condition may prevent proper metabolic response to the unusual burden imposed by the operation. Unless the patient is very dry and dehydrated, from 2 to 3 liters of fluid a day for two days is probably adequate preparation. If the fluids cannot be retained when administered by mouth, they may be given by rectum, subpectorally or intravenously.

The diet should contain from 80 to 100 gm. of carbohydrate each day for at least two days immediately preceding the operation. The protein should not exceed 1 gm. per kilogram of body weight of the patient. The fat content of the diet should be low, thereby diminishing the possibility of ketosis by limiting the number of fat radicals to undergo incomplete splitting. From 50 to 75 gm. of fat a day is adequate, and in some cases much less may be given. The diet given in the accompanying tabulation adequately meets the preoperative requirements of the average gallbladder patient who is not too ill to eat. It contains approximately 100 gm. of carbohydrate, 45 gm. of protein and 58 gm. of fat.

Diet for Use Before Operations on Gallbladder

Breakfast	*Dinner*	*Supper*
One-half grapefruit	One small piece of meat	One egg
One large dish of oatmeal	One Uneeda biscut	One Uneeda biscuit
Three ounces of milk	One small butter ball	One small butter ball
One egg	Two ounces of milk	One shredded wheat biscuit
One Uneeda biscuit	One small orange	Three ounces of milk
One small butter ball		One small orange

Tea, coffee, cocoa shells and saccharin as desired.

If the patient is too ill for this menu, carbohydrates must be persistently administered in small increments in the form of liquids given by mouth and by rectum. Two 6 ounce rectal injections of 10 per cent. glucose solution, 10 ounces of orange juice, a pint of oatmeal water gruel and half an ounce of levulose sugar in tea or in the gruel are equivalent to 101 gm. of carbohydrate, and we have experienced no difficulty in administering these slowly throughout the twenty-four hours. The oatmeal water gruel is made by reheating 8 ounces of cooked oatmeal, the equivalent of 1 ounce of dry oatmeal, in 1 pint of water, straining out the husks and diluting the gruel to the desired consistency. We have never found it necessary to resort to the intravenous injection of glucose. Insulin should be used to prevent undue accumulation of sugar in the urine. Two hours before operation, 5 ounces of orange juice is given by mouth.

On the day of operation, the usual morning dose of insulin should precede by thirty minutes the 150 gm. of orange juice given two hours before operation. To give large doses of insulin just before the operation is both unwise and unnecessary. The production of sugar and acid can be adequately controlled after the operation, and it is unnecessary to subject the patient to the dangers of hypoglycemia. Insulin should be used to control the amount of sugar and diacetic acid in the urine and to enable the patient to take from 80 to 100 gm. of carbohydrate each day, but no more should be expected of it before the operation.

---

[2] Sansum, W. D., and Woodyatt, R. T.: J. Biol. Chem. **21**: 1, 1915.

[3] Bloor, W. R.: J. Biol. Chem. **19**: 1, 1914.

[4] Joslin, E. P.: Treatment of Diabetes Mellitus, Philadelphia, J. B. Lippincott Company, 1923, p. 626.

[5] Jones, D. F.; McKittrick, L. S., and Sisco, D. L.: Surgical Treatment of Gallbladder Disease in Diabetics, Boston M. & S. J. **191**: 709 (Oct. 16) 1924.

After operation, minute attention to detail is essential, and for this reason a special nurse is very desirable, although not indispensable. The more diabetic training the nurse has had, the more intelligent will be her care of the patient; but any well trained nurse can carry out the simple procedures necessary. The usual watchfulness accorded the nondiabetic patient who has been operated on should be redoubled for the diabetic patient. Nothing should be left undone to make him comfortable and to relieve him of every conceivable burden, for he will convalesce in direct proportion to the size of the load he is called on to carry.

A single specimen of urine is obtained every three or four hours after the operation and is tested for sugar by the Benedict test, and diacetic acid with ferric chlorid. If necessary, a self retaining catheter may be inserted and, in this case, specimens may be obtained at any interval. It is best not to delay more than three hours if any doubt exists about the patient's condition. If a catheter is used, hexamethylenamin should be administered. These single specimens, as obtained, are tested by the nurse, who then administers insulin on the basis of the qualitative results. The amount of sugar may be quantitated if desired, but this adds no helpful data. The single specimens should be carefully preserved in order that the twenty-four hour urine specimen may not be depleted.

Insulin is administered subcutaneously on the basis of the qualitative tests for sugar and diacetic acid in the urine. We have never found it necessary, in patients who have been operated on, to inject insulin intravenously. If the Benedict test for sugar is red, brown or yellow and no diacetic acid is present, 15 units of insulin may be given; but if diacetic acid also is present, 20 units may be administered. If the Benedict test is green, 5 or 10 units of insulin may be given. In general, more insulin may be safely given in the presence of diacetic acid than when it is absent. It is not necessary to follow each dose of insulin with carbohydrate ingestion. We make no effort to give enough carbohydrate after each dose of insulin to utilize all the insulin administered. When the insulin dose is carefully gaged against the sugar and diacetic acid in the urine, we have had no difficulty. We are, however, continuously feeding small quantities of carbohydrates, as will be shown later. These procedures may be carried out every one, two, three or four hours, depending on the urgency of the indications. We have had excellent success working on a three-hour schedule. We are not concerned if the patient does not become immediately sugar-free. Frequently this state is not reached for several days after operation. If the sugar and diacetic acid in the urine are under control and not increasing in amount, we are satisfied to work more conservatively, feeling that rapid changes in the metabolism of the patient are not always desirable. As convalescence progresses, the insulin requirements become less and less and it is often possible to dispense with it entirely.

Blood chemistry does not often play an important rôle in the postoperative care of a diabetic patient. Occasionally a patient is encountered in whom a knowledge of the blood sugar or the carbon dioxid combining power of the blood results in real benefit to the patient, but such cases are exceptional. We have not found it necessary to make blood sugar and carbon dioxid determinations a part of the postoperative routine. The simple tests for sugar and diacetic acid in the urine have usually supplied all the data necessary for adequate treatment. If urine specimens cannot be obtained, however, the blood offers the only other means of supplying the data necessary for the direction of the treatment.

The amount of fluid required after operation varies a great deal. Probably no patient should receive less than 1,500 c.c. during the first twenty-four hours. More may be given, depending on the degree of acidosis present and the general condition of the patient. We always put 6 ounces of tap water into the rectum every four to six hours during the first twenty-four hours following operation. The patients begin to take small amounts of water by mouth just as soon as they ask for it, but great pains are taken to prevent vomiting, for this usually produces acidosis. We try to attain a daily fluid intake of from 2 to 3 liters as soon as possible after operation. We have not yet found it necessary to use the intravenous route, but subpectoral salt solution has proved of great value.

During the first twenty-four hours after operation, we have found it desirable to administer from 40 to 60 gm. of carbohydrate. In cases showing considerable diacetic acid, it is advisable to give more insulin rather than to give larger amounts of carbohydrate. One pint of oatmeal water gruel containing one-third ounce of levulose supplemented by 10 ounces of orange juice, contains 60 gm. of carbohydrate. It is usually not difficult to feed these amounts in teaspoonful increments, but their volume may always be reduced by resorting to glucose solution by rectum. Equal parts of milk and vichy have proved very acceptable to some patients. Such a diet contains little fat and is therefore very desirable for the gallbladder patient. We give no thought to the protein content of the diet at this stage of the treatment. Sometimes the whites of two or three eggs are added to the orange juice, but this is done, not so much for the protein as to make the orange juice bland.

The day following operation, the diet remains almost the same as on the first day; but thereafter milk, cream, Uneeda biscuits, butter and eggs are added as rapidly as possible until the patient is taking his full maintenance diet. Meat, bacon, vegetables, and cheese are added very conservatively. In our experience it has taken from seven to ten days to reach a maintenance diet composed of the simple, easily digested foodstuffs. Bulk and overloading the stomach should be carefully avoided.

About 20 calories per kilogram of body weight is adequate for the average bed patient. We have found it unnecessary to feed 1 gm. of protein per kilogram of body weight in order to obtain rapid healing of the wound. As already indicated, the fat in the diet is kept at a low level during the convalescence of these gallbladder cases.

COMMENT

If all conditions as stated above can be carried out, what should be our attitude toward the diabetic patient? We believe that the advice given by Joslin to diabetic patients with gallstones can be applied to all abdominal conditions. He says, "In diabetic patients my advice is to have gallstones removed when the conditions of time, place, surgeon and physician are propitious." We know of no limitations to be placed on the diabetic patient that should not be placed on the normal person—in other words treat the surgical condition, and after operation treat the diabetes.

A report of twenty-six diabetic necropsies by Warren nd Root[6] brings out certain facts of importance in betic surgery. In the first place, the conception of e pancreas in diabetes as a static organ without tendency to regenerate is controverted by evidence showing that regeneration does occur in diabetes and may account for the long duration of favorable cases. With insulin treatment, evidence is definite that regeneration may occur. This should encourage the surgeon to remove foci of infection, not only because of their intrinsic danger but also because of their hampering influence on pancreatic regeneration.

In these necropsies the acinous tissue was found to be damaged as well as the islands of Langerhans. This is in accord with the work of Jones and his co-workers,[7] who have shown that in diabetes there is a marked alteration in the external secretory activity of the pancreas, and in the hepatic function. Among twenty-one necropsies on patients over 25 years of age, gallstones occurred six times and cholecystitis with obliteration of the gallbladder in a seventh. Furthermore, in only one of these patients had the gallstones been recognized during life. Cholecystitis and cholelithiasis should be sought energetically and treated promptly.

The first year of diabetes has long been known as the danger zone, because so many patients die then in coma. In such cases, at necropsy, little or no evidence of regeneration was found. This should warn the surgeon that diabetic patients, in the first year of the disease, need especial attention to prevent acidosis at the time of an operation.

Mild diabetes of long duration is occasionally regarded with contempt, especially in those past their youth. In this series, however, seven cases of mild diabetes of over fifteen years' duration showed most marked change in the islands of Langerhans. Of these patients, two with diabetes for twenty-five and thirty years developed severe acidosis when mild infections were not given prompt surgical treatment. Though mild, a diabetic patient is still diabetic, and consequently an easy prey to coma or septicemia.

It may be stated that, clinically, the removal of gallstones often gives the diabetic patient a new lease of life, his carbohydrate tolerance increases, and the improvement in general condition is marked. A young man with vague gastric symptoms and an occasional attack of epigastric distress could not be kept sugar free on an increasingly strict diet. Removal of a normal appearing gallbladder containing stones has made it quite easy to keep him sugar free on a much more liberal diet.

An important group of cases has been the gastric and duodenal ulcer group. A man, aged 47, with a long history of ulcer, and diabetes for a year and a half was unable to work for months. Within two months after a gastro-enterostomy he was at work and able to support a family of eight children. A man, aged 45, with duodenal ulcer and some pyloric obstruction, lost weight and strength until confined to bed. Fifty units of insulin and a C 50-P 70-F 100 diet would not keep him sugar free. After a gastro-enterostomy he left the hospital on a diet of C 80-P 63-F 150 without insulin, feeling well and gaining weight.

Patients from whom tumors of various kinds have been removed have shown marked improvement, but this is not always the case.

The most striking and most important group of cases are those in which septic foci, acute, subacute or chronic, are removed. The cholecystitis and appendicitis cases are the striking examples in which great immediate and permanent benefit is derived. In other words these patients are septic, and diabetes cannot improve in the presence of sepsis. Removal of the focus of infection changes the aspect of the case from that of a patient losing ground steadily to a comparatively healthy person in whom it is relatively easy to control the diabetes.

A woman, aged 40, with severe diabetes, emaciated and scarcely able to get about, was operated on for a chronic empyema of the gallbladder with few symptoms. A marked increase in carbohydrate tolerance took place and has remained constant for three years, and the patient has gained 40 pounds (18 kg.).

A man, aged 45, was kept in good condition with great difficulty for several years before an attack of acute gangrenous appendicitis. The appendix was removed and the abdomen drained. There was a marked increase in the carbohydrate tolerance as soon as the wound healed, and that tolerance has now been maintained for nine years.

But a more important reason for early operation than to increase the carbohydrate tolerance in the cases of acute infection is the great danger to the patient from the unrecognized seriousness of the infection. These patients do not react to pain or infection to the extent that a normal person does; the infection is therefore more likely to get beyond a localized area without recognition. These patients, we believe, are also more likely to general infections than the normal person. We have seen a case of appendicitis develop in the hospital under our supervision, and develop into a peritonitis rather gradually without its seriousness being recognized. We have operated on many patients who appeared to have simple gallstones, only to find markedly thickened and infected gallbladders and even chronic perforations. There is every reason why ulceration and infection in the gallbladder or appendix should go on as insidiously and with few symptoms as infections in other parts of the body in diabetic patients.

SUMMARY

We believe that the only additional consideration in deliberate operations on diabetic patients other than would be considered in normal persons is the ability to control the diabetes before operation.

In infections, acute and chronic, we believe that it is much more important to operate early than in the case of normal persons, and in acute cases the operation is more of an emergency than in the normal. They must be treated as emergency cases because of the difficulty of determining the seriousness of the lesion, and because acute infections quickly lead to serious diabetic conditions. The rule should be to operate first, and at once, in acute infection and treat the diabetes after the operation.

The future is brighter for the diabetic patient than ever before. Everything possible should be done to relieve him of extra burdens, for regeneration of the pancreas has been clearly demonstrated and all his resources are needed in this regeneration.

---

[6] Warren, S., and Root, H. F.: Am. J. Path. 1: 415, 1925.

[7] Jones, C. M.; Castle, W. B.; Mulholland, H. B., and Bailey, Frances: Pancreatic and Hepatic Activity in Diabetes Mellitus, Arch. Int. Med. 35: 315 (March) 1925.

REDUCING THE SURGICAL RISK IN SOME GASTRO-INTESTINAL CONDITIONS *

THOMAS G. ORR, M.D.
AND
RUSSELL L. HADEN, M.D.
KANSAS CITY, KAN.

As early as 1918, McCann[1] showed an increase in the alkali reserve of the blood in pyloric obstruction. Two years later, MacCallum, Lintz, Vermilye, Leggett and Boas[2] reported an increase in the carbon dioxid combining power of the blood plasma, and a fall in chlorids following sectioning of the pylorus in dogs. Hastings, Murray and Murray[3] studied the blood of dogs with pyloric obstruction and found that they all developed an alkalosis. Grant[4] noted a similar rise in the carbon dioxid combining power of the plasma and a reduction of the chlorids in two clinical cases of obstruction of the pylorus.

In acute intestinal obstruction, Tileston and Comfort[5] were the first to report an increase in the blood nitrogen. Cooke, Rodenbaugh and Whipple,[6] in experiments on dogs, also found a rise in the nonprotein and urea nitrogen. Draper[7] reports essentially the same findings, and Louria[8] and Rabinowitch[9] observed the same changes in clinical cases of intestinal obstruction, and emphasized the importance that these blood changes have in the differential diagnosis and prognosis of acute abdominal disease.

Our interest in the blood chemistry of gastro-intestinal tract obstructions began with a study of three patients who had quite marked reactions following gastro-enterostomy.[10] These patients were all quite seriously ill with rapid pulse, fever, dry tongue and, in one case, delirium. In each case, the blood showed a marked increase in nonprotein nitrogen, a fall in chlorids and an increase in the carbon dioxid combining power of the plasma. Two of the patients in whom the urine was studied showed a great increase in excreted nonprotein nitrogen and a reduction in the chlorids to a mere trace. The evident severe intoxication of these three patients was considered in each case due to a temporary duodenal obstruction at the gastro-enterostomy stoma or produced by a kinking of the intestine at the ligament of Treitz.

These findings were a stimulus to study the blood chemistry experimentally in pyloric[11] and upper intestinal[12] tract obstructions. The fall in the chlorids as indicated above suggested that they were in some manner utilized or destroyed during the toxemia. The possibility that the chlorids acted in a protective capacity led to experimental administration of sodium chlorid as a therapeutic agent.[13]

Dogs were used for most of the experiments. Rabbits and monkeys[14] were also used to check the blood chemical findings in dogs. Obstruction at the pylorus was produced by ligation with a tape. The development of toxemia was usually rapid and extreme. There was in all cases a rise in the blood nonprotein and urea nitrogen, a rise in the carbon dioxid combining power of the plasma, and a drop in the chlorids. In one instance, the chlorids dropped from 510 mg. per hundred cubic centimeters of blood to 110 mg. before the death of the animal. There was always a rise in the nonprotein nitrogen and diminution of chlorids in the urine. Obstruction of the duodenum and upper end of the jejunum were produced by section and inversion of the cut ends. Such obstructions produced chemical changes in the blood and urine similar to those of pyloric obstruction.

These changes in the blood are laboratory evidence of the degree of toxicity produced by the disease. It seems to us that of all the changes, the fall in chlorids is the most significant. What becomes of the chlorids is as yet unknown. It has been suggested that they are lost by vomiting, but this can hardly be entirely true, because rabbits show the same chemical changes and never vomit. We have attempted to prove that the chlorids in some way have protective power in combating the toxemia. In a series of four dogs with duodenal obstruction, 500 c.c. of 0.85 per cent. sodium chlorid solution was given daily by hypodermoclysis. These four dogs lived twenty-one, twenty-seven, twenty-eight and thirty days without the chemical changes in the blood characteristic of the toxemia of high intestinal obstruction. Dogs with obstruction in the same location without treatment died in from three to eight days. A series of three dogs were given 500 c.c. of distilled water daily in the same manner as the saline solution to determine the effect of water alone. These three dogs died in two, three and four days, a duration of life shorter than that observed in our dogs with like obstruction and no treatment. Other animals were permitted to develop the typical blood changes of toxemia following obstruction and were then given doses of hypertonic sodium chlorid from 3 to 25 per cent. In these animals the blood chemical changes could be returned to within normal limits by the administration of sufficient salt, regardless of the quantity of water given. This seems further evidence of the protective power of sodium chlorid against the toxin of intestinal obstruction.

In another series of experiments, we have noted the effect of distilled water and salt solution introduced directly into the intestine below a high obstruction of the jejunum.[15] Four dogs were given daily 40 c.c. of water per kilogram of body weight. The animals lived from two to eight days, developing the chemical changes in the blood characteristic of high intestinal obstruction. Three dogs were treated with 40 c.c. per kilogram of 1 or 2 per cent. sodium chlorid solution introduced into the jejunum below the obstruction. These dogs lived eighteen, nineteen and thirty days. One died of distemper on the nineteenth day, and another pulled the enterostomy tube from the jejunum, and it could not

---

[*] From the University of Kansas School of Medicine.

[*] Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

1. McCann, W. S.: J. Biol. Chem. **35**: 553 (Sept.) 1918.
2. MacCallum, W. G.; Lintz, J.; Vermilye, H. N.; Leggett, T. H., and Boas, E.: Bull. Johns Hopkins Hosp. **31**: 1 (Jan.) 1920.
3. Hastings, A. B.; Murray, C. D., and Murray, H. A., Jr.: J. Biol. Chem. **46**: 223 (March) 1921.
4. Grant, S. B.: Tetany, Arch. Int. Med. **30**: 355 (Sept.) 1922.
5. Tileston, Wilder; and Comfort, C. W., Jr.: The Total Nonprotein Nitrogen and the Urea of the blood in Health and in Disease, as Estimated by Folin's Methods, Arch. Int. Med. **14**: 620, 1914.
6. Cooke, J. V.; Rodenbaugh, F. H., and Whipple, G. H.: J. Exper. Med. **23**: 717 (June) 1916.
7. Draper, J. W.: Intestinal Obstruction, J. A. M. A. **69**: 1768 (Nov. 24) 1917.
8. Louria, H. W.: Blood Urea Nitrogen in Acute Intestinal Obstruction, Arch. Int. Med. **27**: 620 (May) 1921.
9. Rabinowitch, I. M.: Canadian M. A. J. **11**: 163 (March) 1921.
10. Haden, R. L., and Orr, T. G.: Bull. Johns Hopkins Hosp. **34**: 26 (Jan.) 1923.
11. Haden, R. L., and Orr, T. G.: J. Exper. Med. **37**: 377 (March) 1923.
12. Haden, R. L., and Orr, T. G.: J. Exper. Med. **37**: 365 (March) 1923.
13. Haden, R. L., and Orr, T. G.: J. Exper. Med. **38**: 55 (July) 1923.
14. Haden, R. L., and Orr, T. G.: J. Exper. Med. **41**: 107 (Jan.) 1925.
15. Haden, R. L., and Orr, T. G.: J. Exper. Med., to be published.

be replaced. The dog living thirty days died without the characteristic blood changes of intestinal obstruction. Three dogs were given distilled water after the development of the toxemia seemed imminent. They died in three, ten and eleven days, with a gradual fall in chlorids and a rise in the urea and nonprotein nitrogen. Animals were then treated with a 10 per cent. sodium chlorid solution directly into the intestine after the beginning of the toxemia. They lived sixteen, eighteen, nineteen and eight days. The dog living only eight days had a nonprotein nitrogen of 129, urea nitrogen 64, and chlorids 290 at the time treatment was begun. It seems probable to us that in some of the very toxic cases, so much damage may be done to the kidneys and other vital organs that no treatment would have effect even though the development of toxic bodies might be arrested.

In order to make our experiments simulate as closely as possible clinical cases of intestinal obstruction, we have carried out experiments on forty-eight dogs with obstruction of the jejunum[16] approximately 12 inches below the ligament of Treitz. Nine dogs had no treatment of any kind, eight had lateral anastomosis, six had distilled water only, seven had lateral anastomosis and 2 per cent. sodium chlorid subcutaneously, ten had lateral anastomosis and treatment with a salt mixture of sodium chlorid, ammonium chlorid, calcium chlorid and potassium chlorid, five had lateral anastomosis and 10 per cent. sodium chlorid intravenously, and three had lateral anastomosis and 25 per cent. salt solution intravenously. The nine dogs given no treatment all died in from two to six days. In the eight dogs, the lateral anastomosis was usually done on the third or fourth day after the obstruction. These animals were allowed water ad libitum. All died following the second operation with a continuation of the toxemia. The six dogs given 40 c.c. of distilled water per kilogram of body weight all died in from one to five days. Lateral anastomosis was not done. Of the seven dogs treated with lateral anastomosis and 2 per cent. salt solution subcutaneously, five lived, one died with peritonitis, and another died with a large abscess at the site of the saline injections. Two of the ten dogs treated with lateral anastomosis and 1 per cent. salt mixture subcutaneously and 5 per cent. intravenously died, and eight lived. In all these cases, treatment with the salt mixture was begun after a fall in the chlorids with beginning evidence of toxemia, and always before the lateral anastomosis. Two of the five treated with 10 per cent. sodium chlorid solution intravenously and lateral anastomosis lived. One died during the injection, one was moribund when treatment was begun, and one died the day following anastomosis from unknown cause. One of the three dogs treated with 25 per cent. salt solution intravenously and lateral anastomosis lived, one died during the injection, and the third died before anastomosis was done.

We have observed a patient with pyloric obstruction[17] due to carcinoma with a urea nitrogen of 56 and chlorids of 320. This patient lived with a rapid return of blood chemistry to normal after gastro-enterostomy and administration of sodium chlorid. Another patient with obstruction of the small intestine had the blood chlorids reduced to 300 and a urea nitrogen of 31. This patient recovered without operation after treatment with large doses of sodium chlorid. The urine in this case, during the height of the toxemia, showed a very high percentage of nonprotein nitrogen and just a trace of chlorids. These rapidly returned to normal with the chlorid treatment.

We have recently studied a case of congenital pyloric stenosis with a blood urea nitrogen of 50, chlorids of 290, and carbon dioxid combining power of the plasma of 73. This case will be reported in detail later.

Dixon[18] has treated five cases of duodenal obstruction with sodium chlorid, with excellent results. Recently, McVicar[19] studied the blood chemistry of thirty cases of high intestinal tract obstruction. He emphasized the value of treatment in such cases with sodium chlorid, glucose and water.

COMMENT AND CONCLUSIONS

These results all lead to the conclusion that sodium chlorid has some protective value against the toxemia developed in high intestinal tract obstruction. Distilled water does not prolong life or return the blood chemistry to normal as does sodium chlorid.

The sodium chlorid seems to be the essential factor in the treatment of the toxemia, and its estimation in the blood serves as an indicator of the degree of toxemia. It appears from experiments that there is always, to some extent, a depletion of the chlorids before protein destruction begins with a rise in the nonprotein elements of the blood. Just what the danger point is in the fall of the chlorids, we have not definitely determined. It probably varies in different individuals. We feel that a blood chlorid of 400 in intestinal obstruction should be a signal for the generous administration of sodium chlorid. Judging from our experimental studies and observations of patients, it is essential to administer sodium chlorid in acute intestinal obstruction before operation as well as after. The quantity of the salt necessary to return the blood chemical changes to normal can be determined only by blood studies. A diminution in chlorids is easily determined by their precipitation in the urine with silver nitrate solution and comparing with the normal. We have made a rough estimate that 1 gm. of sodium chlorid per kilogram of body weight should be given as an initial dose in very toxic patients. This is best given subcutaneously in 1 or 2 per cent. solution or intravenously in 5 per cent. solution.

Too few clinical observations have been made to form the basis of any conclusions concerning mortality rates. However, we feel confident that surgical risks may be lessened by the preoperative use of plenty of salt, and lives saved by its careful administration until the toxemia of intestinal obstruction has disappeared.

This paper, together with the papers of Drs. Thalhimer and Jones, McKittrick and Root, which precede it, and the papers by Drs. Mayo and Walters, and Clark and Lahey, to appear next week, are part of a symposium on the "Poor Surgical Risk." The discussion will follow the papers to be published in our next issue.

---

[16] Haden, R. L., and Orr, T. G.: Arch. Surg., to be published.

[17] Haden, R. L., and Orr, T. G.: Use of Sodium Chlorid in Treatment of Intestinal Obstruction, J. A. M. A. **82**: 1515 (May 10) 1924.

[18] Dixon, C. F.: Value of Sodium Chlorid in Treatment of Duodenal Intoxication, J. A. M. A. **82**: 1498 (May 10) 1924.

[19] McVicar, C. S.: Am. J. M. Sc. **169**: 224 (Feb.) 1925.

Thyroid and Pancreas Only Effective Organ Extracts.—*If we are called upon to enumerate the cases in which it is possible to employ a true substitution therapy—artificially to replace the internal secretion of a gland—we have as yet only two clear instances, those of the thyroid and the pancreas, and of these only one, the thyroid, is known to produce any effect when given by the mouth.*—Vincent, Swale: *Proc. Royal Soc. Med.* **18**:33 (June) 1925.

DOES ROENTGEN RAY MODIFY THE COURSE OF WHOOPING COUGH? *

HAROLD K. FABER, M.D.
AND
HOMER P. STRUBLE
SAN FRANCISCO

In a previous communication, one of us [1] expressed the opinion, based on a small series of cases, that the roentgen-ray treatment of whooping cough, as advocated by Bowditch and Leonard,[2] held promise of value. Subsequent reports by these investigators [3] and by others have appeared, extolling the method. Since the results, while distinctly promising, have not appeared conclusive, it seemed desirable to us to attempt a study that would permit more definite judgment.

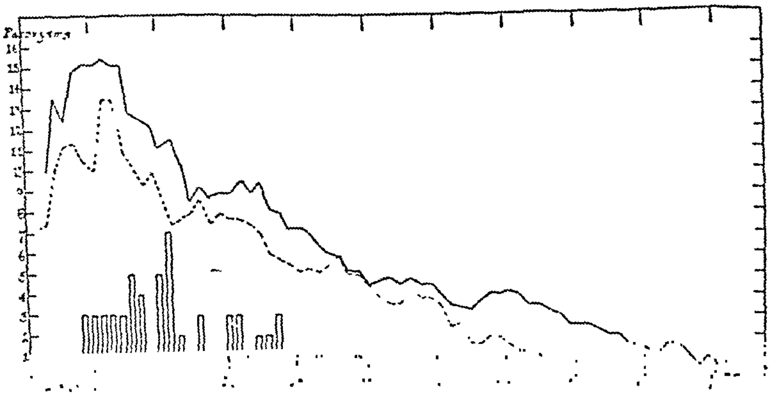


Chart 1.—Average daily number of paroxysms, by days: The "days" or "weeks" in this chart and the other ones refer to the paroxysmal period from its beginning. The columns show the number of roentgen-ray treatments on a given day, plotted on the same ordinate scale as the paroxysms. This curve has been plotted by days, instead of by weeks as in Table 5, to show greater detail. The marked parallelism of the two lines may be noted. Solid line, roentgen-ray cases; broken line, controls; columns, roentgen-ray treatments.

The difficulty of justly appraising the value of whooping cough therapy is apparent when one reviews the almost uniformly "good results" that have been reported from an amazing number of highly diverse drugs and procedures. During the last five years alone, reports have been published of successful treatment with hemotherapy, pertussis vaccine, pertussis serum, serobacterin, smallpox vaccine, protein, lactic acid bacilli, ether, quinin, alum, silver nitrate, magnesium sulphate, benzyl benzoate, phenobarbital (luminal) and various other drugs, and gastric lavage, ultraviolet light, diathermy and the roentgen ray.[4] In many of the reports a control group is mentioned, though practically always smaller than the test group. Close study of the reports frequently shows that patients have been taken at all stages of the disease and in large proportion in the third, fourth, fifth or later week; that improvement, while frequently "rapid," has rarely been abrupt and that the control group is rarely, if ever, really comparable to the treated group. Various difficulties have stood in the way of obtaining suitable controls such, for instance, as that illustrated by the following quotation from Luttinger's [5] paper on pertussis vaccine which, based on an unusually large number of cases, seemed to show a definite advantage for the vaccine:

> The number of curative cases tabulated amount to 1,101, of which 952 were treated with pertussis vaccine (three or more injections) and the rest (149) with drugs. We had planned at the outset to have an equal number of cases in each class; but we found it difficult to carry out this plan in practice. In the early days of the clinic we had an overwhelming number of drug cases because parents did not trust the "needle" treatment. Later on, with the increasing popularity of the vaccine treatment, it became difficult to secure an adequate number of control cases.

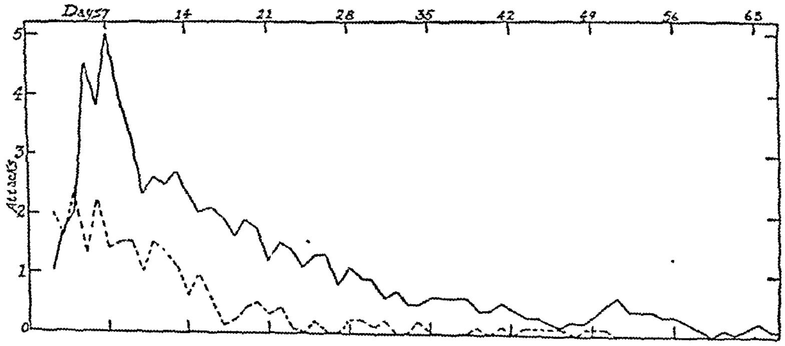


Chart 2.—Average daily number of vomiting attacks, by days: This curve has been plotted by days, instead of by weeks as in Table 6, to show greater detail.

Since the variability in severity of whooping cough is great not only in individual cases and between epidemics but also between different periods of the same epidemic, Luttinger's figures as well as similar ones from other studies lose most of their value, since control and test cases are not necessarily comparable.

The only statement we have found about controls in the several reports of Bowditch and Leonard is as follows: "In addition to the 400 cases treated with the roentgen ray we also followed and tabulated for comparison 200 cases which were not so treated." No further details are given.

In studying the problem of whooping cough therapy, it is absolutely essential to have adequate controls in order that due account may be taken of the variables in a highly variable disease. The control patients should *not only* be in approximately equal numbers with the test patients, but they should be chosen from the same epidemic and from the same period of the epidemic, and moreover should be of approximately the same ages. The best method of selection is obviously to take alternate patients for each group.

In the present paper we report the results of a study based on equal *numbers* of control and test cases selected in such a manner as to afford if possible a just comparison between those treated and those not treated with the roentgen ray. Forty-four consecutive patients from the Stanford Children's Clinic, in the paroxysmal stage of pertussis, formed the material for the study.

---

* From the division of pediatrics, Stanford University Medical School.

[1] Kingston, J. J., and Faber, H. K.: Notes on the X-Ray Treatment of Whooping Cough, California State J. Med. **21:** 429 (Oct.) 1923.

[2] Bowditch, H. I., and Leonard, R. D.: Treatment of Pertussis by Roentgen Ray, Boston M. & S. J. **188:** 312 (March 8) 1923.

[3] Leonard, R. D.: Roentgen Ray in Pertussis, Am. J. Roentgenol. **11:** 264 (March) 1924. Bowditch, H. I.: Further Notes on the Treatment of Pertussis by the Roentgen Ray, J. A. M. A. **82:** 1422 (May 3) 1924. Bowditch, H. I.; Leonard, R. D., and Smith, L. W.: Roentgen-Ray Treatment of Whooping Cough, Am. J. Dis. Child. **28:** 322 (Sept.) 1924. Leonard, R. D.: Further Observations on the Use of the Roentgen Ray in Pertussis, Am. J. Roentgenol. **13:** 420 (May) 1925.

[4] References will be found in the Quarterly Cumulative Index, 1919-1925.

[5] Luttinger, Paul: Pertussis Vaccine, Its Value as a Curative and Prophylactic Agent in Whooping Cough, J. A. M. A. **68:** 1461 (May 19) 1917.

Twenty-two of these were given treatment by roentgen ray, and the remaining twenty-two were treated with antipyrin. With five exceptions, the division of patients into the two groups was made by alternation. Of the five exceptions, two patients were suffering from a rather severe form of the disease; their inclusion has raised the average number of paroxysms and perhaps the average duration of the disease in the irradiated group. We regret this fact, but do not feel that it or other minor differences between the two groups affect such deductions as we have to draw from our data.

It would no doubt have been better for statistical purposes not to treat the control group at all or merely by placebo. This we did not feel justified in doing, and all of the control patients were given moderate doses of antipyrin. The irradiated patients were also given the same drug when it was evident that no effect was being obtained from the roentgen ray. The two groups then afford a comparison between children treated with antipyrin and children treated with roentgen ray, plus, in some cases, the same drug.

The diagnosis was made on characteristic symptoms and in most instances was corroborated by blood count. Cultures were not taken. Mothers were required to make daily notation of the number of paroxysms ("paroxysm" being defined as a coughing spell followed by a definite whoop) and of vomiting attacks; to bring their reports once a week to the clinic, and after the whoop had disappeared to continue the records until dismissed. Delinquents were followed up by one of us personally (H. P. S.). The records are with few exceptions satisfactorily complete. They date from Nov. 8, 1924, to May 7, 1925.

Roentgen-ray treatment was given uniformly according to the following specifications: 8 milliamperes, 9 inch parallel spark, 0.25 mm. copper and 1 mm. aluminum filters, 12 inch anode-skin distance, to 6 inch circular areas front and back of chest. The length of exposure was graduated by the schedule in Table 1.

Table 1.—*Schedule for Roentgen-Ray Treatments*

Under 15 months:	1 minute	(each dose = 56 E* units)	3 patients
15 months to 2 years:	2 minutes	(each dose = 112 E units)	2 patients
Over 2 years:	3 minutes	(each dose = 168 E units)	17 patients

* Twelve hundred E constitute an erythema dose.

Treatments were given on the first, fourth and eighth days of observation.

The treatment used by Bowditch and Leonard is described as follows [6]:

> The ordinary dosage for a child of from 5 to 10 years was five minutes' exposure with the tube set at 4 ma., a 1 mm. aluminum filter and a 6 to 7 inch back up spark at a distance of 28 inches being employed. This dosage was graded somewhat, so that an infant of 3 or 4 months would receive the same dosage, with the exception that the time interval would be three instead of five minutes. The first treatment was given over the anterior chest, the second treatment over the back of the chest, and the remaining treatments alternating in this manner. The total dosage was well within the limits of safety, four exposures totaling less than one half an erythema dose. . . . Patients were given treatments every alternate day for three treatments—the first, third and fifth days. Then, after an interval of seven days, a similar second course of treatments was given in the more protracted and resistant cases. These additional treatments were infrequent, not seeming necessary, as a rule. . . . Very few of the patients had more than four treatments.

Our single and total dosages appear to have been considerably larger than those of Bowditch and Leonard.

The results of our comparative study of the two groups are given in the tables and graphs.

Table 2.—*Summary*

	Control Series	Irradiated Series
Number of cases....................	22	22
Average age	3.3 years	2.9 years
Average length of prodromal period..	10.1 days	11.5 days
Average duration of paroxysmal period before admission to clinic..	6.8 days	9.4 days
Average duration of symptoms before admission	16.9 days	20.9 days
Average total duration of disease to end of paroxysms................	54.5 days	62.5 days
Average total duration of paroxysmal period	44.3 days	51.2 days
Complications occurred in..........	13.6 per cent. (3)	13.6 per cent. (3)

Table 3.—*Distribution of Total Durations of Disease*

Weeks	Number of Cases		Percentage	
	Control	Irradiated	Control	Irradiated
4	2	0	9.1	0
5	3	2	13.6	9.1
6	2	1	9.1	4.5
7	2	3	9.1	13.6
8	5	5	22.7	22.7
9	4	3	18.2	13.6
10	1	1	4.5	4.5
11	2	3	9.1	13.6
12	1	3	4.5	13.6
16	0	1	0	4.5
4-8	14	11	63.6	50.0
9-16	8	11	36.4	50.0

Table 4.—*Distribution of Durations of Paroxysmal Period*

Weeks	Number of Cases		Percentage	
	Controls	Irradiated	Controls	Irradiated
2	1	0	4.5	0
3	2	1	9.1	4.5
4	2	3	9.1	13.6
5	2	0	9.1	0
6	5	4	22.7	18.2
7	3	5	13.6	22.7
8	4	1	18.2	4.5
9	2	3	9.1	13.6
10	1	4	4.5	18.2
14	0	1	0	4.5
2 6	12	8	54.5	36.4
7-14	10	14	45.5	63.6

Table 5.—*Average Number* of Paroxysms Daily, by Weeks*

Weeks	1	2	3	4	5	6	7	8	9	10
Control patients....	10.2	10.9	7.9	6.4	5.1	3.7	1.9	0.9	0.1	0.02
Irradiated patients..	14.3	12.6	9.6	8.3	5.8	4.5	3.7	3.2	1.8	1.1

Table 6.—*Average Number* of Vomiting Attacks Daily, by Weeks*

Weeks	1	2	3	4	5	6	7	8	9
Control patients.........	1.7	1.2	0.4	0.1	0.1	0.04	0.1	0.04	0
Irradiated patients.......	3.3	2.7	1.8	1.2	0.7	0.5	0.2	0.4	0.1

* The figures in these tables were obtained by dividing the total number of reported attacks by the total number of reported days. The averages are therefore for the entire group exclusive of those cases in which exact data were unavailable (chiefly during the period preceding admission to the clinic).

Table 7.—*Percentage* of Patients Still Whooping at Any Given Week After the Onset*

Weeks	1	2	3	4	5	6	7	8	9	10
Control patients......	100	100	94.7	95.0	76.5	65.0	52.3	31.8	9.1	4.5
Irradiated patients....	100	100	100	100	90.0	77.8	63.2	42.8	36.3	22.7

* Percentages calculated by dividing number of patients whooping by total number of patients having exact reports during given week.

It is evident that in our two series, the patients who did not receive roentgen-ray treatment made a better showing in practically all respects.

---

6. Bowditch (Footnote 3, second reference).

The total average duration of the disease and the average duration of the paroxysmal stage were considerably less; the daily average of paroxysms and of vomiting attacks was lower throughout the course of the disease; the proportion of patients who stopped whooping and vomiting early was greater, and but one was still whooping (last three paroxysms) in the tenth week as compared with five of the irradiated patients. Such differences were, it is probable, determined by a greater average initial severity of disease in the treated group (affording a somewhat more rigorous test of the virtues of irradiation), but they certainly give no hint of benefit from the roentgen ray. Particularly illuminating are the comparative curves of the average daily number of paroxysms in the two groups. In both there is an abrupt rise during the first week and the first part of the second, then an even more abrupt drop during the latter part of the second week and the first part of the third, followed by a gradual and fairly even decline during the remaining weeks It is notable that the two curves are quite uniformly parallel during the first four weeks and that the largest number of roentgen-ray treatments were given during the period of most rapid decline, which had, however, already begun before many treatments had been given and which was no more rapid in the treated than in the control series. Had we had no controls or had the controls been taken from another epidemic with a different average course it would have been hard to resist the temptation to assume a definite and marked beneficial effect from irradiation It will be noted that in the fifth week the two curves for a brief period almost coincide. Here, if anywhere, the irradiated group appears to have progressed more favorably than the control. Since, however, the advantage appears to be due to a temporary (perhaps accidental) increase in paroxysms in the control group rather than to coincident decline in the irradiated group, since it occurs at least two weeks after any considerable number of roentgen-ray treatments had been given, and is followed soon by an increasing divergence in favor of the controls, one may fairly conclude that no real effect of irradiation is in evidence.

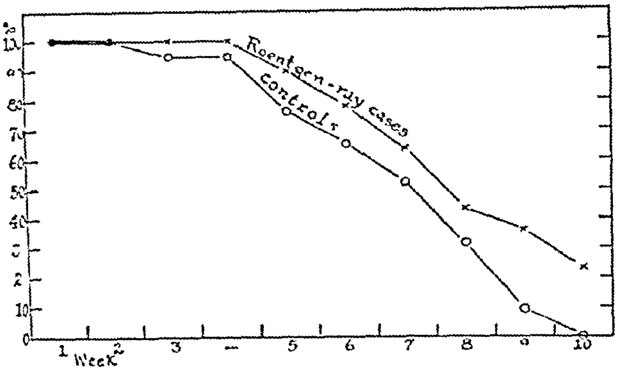


Chart 3—Percentage of patients still whooping at any given week after onset, one of the irradiated patients whooped for fourteen weeks

We have already given one reason why the observer of uncontrolled cases may be misled into thinking that he has obtained successful results in treatment with the roentgen ray—or with some other method that he has used. Another reason is the enthusiasm with which mothers and even physicians are apt to greet new remedies, particularly in the case of whooping cough. Luttinger's experience with vaccine has already been cited.

We have kept record of some statements made to us during the course of the present study. Two mothers thought the paroxysms more severe on the day of treatment and less severe afterward, but their children continued to whoop until the fifth and ninth weeks, respectively. The record kept by one mother, who said she was "pleased" with the treatment and that her child whooped less frequently and severely after it, showed that her child whooped for six weeks. Another thought the treatment "wonderful," but her child whooped for seven weeks Another child, whose mother was very pessimistic about the treatment, also whooped for seven weeks It is also of interest that five patients—those mentioned in an earlier paragraph—were sent out of turn for roentgen-ray treatment by clinic physicians who had become enthusiastic about it and thought that the children should not be denied its benefits. In the irradiated group in two instances the paroxysms rapidly decreased after admission, ceasing entirely during the fifth and sixth weeks, but these are matched by seven similar cases in the control group. One patient (not included in the present series) whooped but four days and another (fortunately in the control group) stopped whooping rather suddenly in the second week. We cite these instances to illustrate the great care needed correctly to interpret clinical findings in whooping cough.

We believe that our figures afford strong evidence against the assumption that the roentgen ray has a curative or even beneficial physical effect in the treatment of whooping cough. This result of our study was unexpected by us, since we began the investigation with a prepossession in favor of the treatment based on previous clinical impressions. We cannot deny that occasionally sudden, if temporary, remissions in whooping may occur after irradiation, as apparently after other kinds of treatment. The fact that such remissions have been reported from so many different methods may be accounted for largely by the sudden and frequently unexpected fluctuations in the normal course of the disease and partly (as is well recognized) by the psychic reaction made by a strange or startling procedure on a young and highly impressionable child. The roentgen-ray treatment is well adapted to produce such a reaction The patient is laid and held on a table, usually much against his will, while strange lights and sparks and noises play about him Indeed, it has been reported to us that the mere taking of a roentgenogram has caused a striking, though temporary, diminution in attacks.

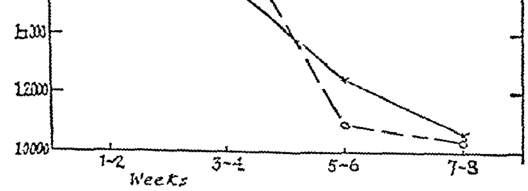


Chart 4—Average total leukocyte count, by two week periods, the greater drop in the count in the irradiated patients during the first four weeks may have been due to the roentgen ray, but the number of counts was not large enough to make this inference conclusive.

This, calculated on the entire brain, amounts to 4.77 mg. No volatile lead compound could be isolated from the other tissues.

Table 1.—*Chemical Analysis in Case 1; Body Weight, 48.2 Kg.*

	Total Weight of Organ, Gm.	Weight of Tissue Used, Gm.	Lead Sulphate Found, Mg.	Lead Found, Mg.	Total Lead in Organ, Mg.
Brain	1,250*	250	7.0	4.78	23.90
Bone (Vert.)	8,840*	285	1.88	1.284	39.83
Blood	3,070*	30	.....	0.027†	2.76
Lungs	1,540	250	1.6	1.09	6.71
Liver	1,400	250	12.5	8.54	47.82
Kidney	340	120	1.8	1.23	3.48

* Estimated weight of entire organ.
† Microcolorimetric method used.

Table 2.—*Chemical Analysis in Case 2; Body Weight, 54.5 Kg.*

	Total Weight of Organ, Gm.	Weight of Tissue Used, Gm.	Lead Sulphate Found, Mg.	Lead Found, Mg.	Total Lead in Organ, Mg.
Brain	1,680	250	6.14	4.194	28.18
Lungs	1,580	250	0.77	0.526	3.32
Liver	1,880	250	11.97	8.175	61.47
Kidney	380	110	4.52	3.087	10.66
Blood	3,400*	28	.....	0.027†	3.28
Bone (femur)	9,730*	230	1.67	1.139	48.19

* Estimated weight of entire organ.
† Microcolorimetric method used.

Table 3.—*Chemical Analysis in Case 3; Body Weight, 52.3 Kg.*

	Total Weight of Organ, Gm.	Weight of Tissue Used, Gm.	Lead Sulphate Found, Mg.	Lead Found, Mg.	Total Lead in Organ, Mg.
Brain	1,250*	250	5.68	3.88	19.40
Lungs	900	250	2.306	1.575	5.67
Liver	1,500	250	7.450	5.088	30.53
Kidney	295	120	2.928	2.00	4.92
Bone (Vert.)	9,200*	185	1.133	0.774	38.49

* Estimated weight of entire organ.

Table 4.—*Chemical Analysis in Case 4; Body Weight, 61 Kg.*

	Total Weight of Organ, Gm.	Weight of Tissue Used, Gm.	Lead Sulphate Found, Mg.	Lead Found, Mg.	Total Lead in Organ, Mg.
Brain	1,250*	250	4.64	3.17	15.84
Lungs	930	250	0.887	0.606	2.25
Liver	2,130	250	9.953	6.798	57.92
Kidney	400	125	2.344	1.600	5.12
Bone (Vert.)	10,800*	200	1.388	0.948	51.21

* Estimated weight of entire organ.

No volatile lead compound could be isolated in Case 3.

No volatile lead compound could be isolated in Case 4.

It is of interest to note that, in the general analytic procedure for other toxic substances, it was found that the organs in each of the four cases also contained a small amount of mercury. The liver and the kidney contained more mercury than the other tissues. The amount of mercury in the four sets of kidneys ranged between 0.85 and 1.25 mg. to each 100 gm. of kidney tissue.

SUMMARY OF CHEMICAL FINDINGS

1. A volatile lead compound was isolated and proved in the brain tissue in two of the four cases. The amount of this compound that remained in the two brains up to the time of the analysis was 4.25 mg. and 4.77 mg. The rest of the lead in these brains was in a nonvolatile form. The fluids of the tissues had hydrolyzed most of the tetra-ethyl lead into a nonvolatile lead salt. In the two cases in which no such compound could be isolated, the patients lived twenty-seven and forty-nine hours, respectively, longer after exposure to the tetra-ethyl lead. This additional time interval evidently hydrolyzed all the tetra-ethyl lead into a nonvolatile form. No volatile lead compound could be isolated from any other tissues.
2. The total amounts of lead found in the various tissues analyzed are given in the tables.
3. Contrary to the usual findings in lead poisoning, the bones in these cases did not show a very high lead content as compared to that found in the other tissues. Calculated on equal portions of tissue, the brain and liver exceeded the bones in the lead content.
4. The brain tissue in these cases contained much more lead than is usually found in cases of lead poisoning. This can be explained, perhaps, by a specific attraction of brain tissue for tetra-ethyl lead.
5. The lungs also showed a somewhat high quantity of lead, indicating absorption through them.
6. The liver and kidneys contained a very large amount of lead, indicating a process of attempted removal from the body.
7. All the organs, including the blood, contained lead. This points to a very recent intake of lead in some form.
8. A small amount of mercury was found in the liver and in the kidneys in all four cases.

Municipal Building.

GLYCOGENOLYTIC ACTION OF INSULIN *

ERNST F. MÜLLER, M.D.
AND
WILLIAM F. PETERSEN, M.D.
CHICAGO

Since the discovery of insulin by Banting and Best, the problem of the mechanism of insulin action has played an important rôle in practice and research. If we knew how insulin acted when introduced into the mammalian body and what organs participated in the increased sugar metabolism, the knowledge would aid the physician to adapt insulin therapy to the individual diabetic patient and to determine insulin dosage in the particular stage of the disease.

THE TWOFOLD ACTION OF INSULIN

From work initiated by one of us in connection with others,[1] a twofold action of insulin has been developed when it was observed that a nerve action played a part in insulin effect. This work was based on studies of differences in insulin effect when different modes of administration were used in animals.

On administering like dosages of insulin (0.5 unit per kilogram of body weight) subcutaneously, intravenously and intradermally, it was found that during a period of about two hours following the injection no very distinct differences could be observed in the blood sugar curves; after this period the intradermally injected insulin exceeds the others in duration and intensity of effect. Similar results obtained in human beings, both in normal controls and in diabetic patients, have been discussed in another paper.[2]

---

* From the Department of Preventive Medicine, University of Illinois College of Medicine.

[1] Müller, E. F., and Corbitt, H. B.: J. Lab. & Clin. Med. 9:612 (June) 1924.

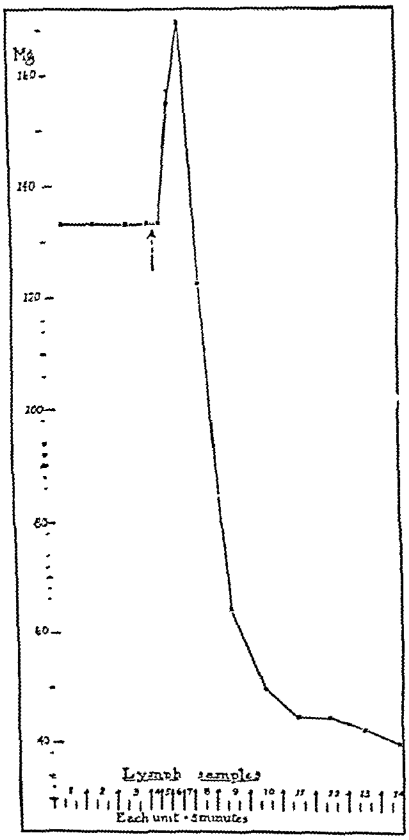
[2] Müller, E. F.; Wiener, H. E., and Wiener, R. von E.: Proc. New York Soc. Biol. & Med., April, 1925; München. med. Wchnschr. 72:1061, 1925.

From these findings, the conclusion has been reached that insulin acts differently, depending on whether or not it acts from a tissue depot such as an intradermal deposit, or after absorption into the circulation.

From a tissue deposit, insulin acts on the glycogenetic function of the liver merely by nerve stimulation. This nerve action and the glycogenetic reaction and the consequent lowering of the blood sugar are effective as long as insulin remains unabsorbed in its tissue depot.

The nerve action is conducted parasympathetically; it is particularly intensive from an organ such as the skin. It is almost negligible after subcutaneous injection, and entirely lacking after intravenous injection. The nerve action and the glycogenic liver reaction do not depend on the dosage. With the onset of resorption of the insulin deposit, the hormone enters the circulation, establishes the necessary contact with the respective organs, and becomes effective in the tissue after a certain period of time. The sugar is metabolized by processes not known in all phases and details, but the process is independent of liver function and is in its effectiveness directly proportional to the quantity of insulin present in the circulation.

A dual effect is thus produced, a glycogenesis, the result of a nerve stimulus, and a glycolysis, the result of a hormone action. The nerve effect is active before absorption, while the hormone action is not effective until insulin has entered the circulation. The nerve effect initiates a physiologic liver action, glycogenesis. The hormone action, on the other hand, is a purely biologic result of the interaction of insulin and tissue extractives, and obtainable in vitro.



Effect of a subcutaneous injection of insulin on the lymph sugar; the arrow indicates subcutaneous injection of 20 units of insulin.

HYPERGLYCEMIA FOLLOWING SUBCUTANEOUS INJECTION OF INSULIN

In recent experiments, we have sought to determine whether or not differences exist in blood sugar curves during the period immediately following intradermal and subcutaneous insulin injections.

Our experiments have been made exclusively on dogs of from 8 to 13 kg. Insulin-Lilly was used in different quantities and the blood sugar determinations were carried out at ten minute intervals before, and after the injections, for a period of one hour or longer. Such experiments were controlled by a number of simultaneous lymph sugar determinations.

The following protocols, and the chart of the effect on the lymph determination, indicate the striking differences that follow the different routes of administration:

INTRACUTANEOUS INJECTIONS

Experiment 1.—Weight of dog, 12 kg. Blood sugar samples, every ten minutes.

1. 93.0 mg. of blood sugar per hundred cubic centimeters of blood.
2. 93.0.
3. 91.0. Intracutaneous injection of 10 units of insulin.
4. 87.0.
5. 87.0.
6. 75.4.
7. 74.0.
8. 68.9.
9. 74.0.
10. 75.4.

Experiment 2.—Weight of dog, 15 kg.

1. 91.3 mg. of blood sugar per hundred cubic centimeters of blood.
2. 93.0.
3. 95.2. Intracutaneous injection of 10 units of insulin.
4. 99.0.
5. 98.5.
6. 87.0.
7. 87.0.
8. 80.0.
9. 74.0.
10. 74.0.

The same results were obtained with diabetic dogs, as will be seen in the following protocol:

Experiment 3.—Weight of dog, 11 kg. Depancreatized two days before the experiment.

1. 172.4 mg. of blood sugar per hundred cubic centimeters of blood.
2. 166.6.
3. 166.6. Intradermal injection of 10 units of insulin.
4. 160.0.
5. 160.0.
6. 153.8.
7. 151.5.
8. 142.8.
9. 131.5.
10. 128.4.

SUBCUTANEOUS INJECTIONS

Subcutaneous injections, on the other hand, are invariably followed by a primary increase in the blood sugar level. The following protocols of normal and diabetic animals illustrate the reaction:

Experiment 4.—Weight of normal dog, 8.4 kg.

1. 105.0 mg. of blood sugar per hundred cubic centimeters of blood.
2. 102.5.
3. 102.0. Subcutaneous injection of 10 units of insulin.
4. 108.0.
5. 111.0.
6. 112.0.
7. 105.0.
8. 95.2.
9. 93.0.
10. 90.5.

Experiment 5.—Weight of normal dog, 7.2 kg.

1. 96.6.
2. 97.7. Subcutaneous injection of 10 units of insulin.
3. 130.0.
4. 131.5.
5. 160.0.
6. 157.5.
7. 140.8.
8. 116.8.
9. 124.0.
10. 114.5.

Experiment 6.—Weight of diabetic dog, 8.4 kg. Depancreatized three days before the experiment. Experiment, July 18.

1. 222.
2. 228.
3. 222. Subcutaneous injection of 16 units of insulin.
4. 238.
5. 227.
6. 222.
7. 219.
8. 189.
9. 156.
10. 124.

In the lymph obtained from the thoracic duct of a normal dog, the rise of the sugar following the intravenous and subcutaneous injection is equally striking.

Experiment 7.—Normal dog.

15 minute sample. Sugar, 133 mg. per hundred cubic centimeters of lymph.

15 minutes.	130 mg.
15 minutes.	131 mg.
5 minutes.	133 mg.
Injection of 20 units of insulin.	
5 minutes.	131 mg.
5 minutes.	155 mg.
5 minutes.	168 mg.
10 minutes.	123 mg.
15 minutes.	64.5 mg.
15 minutes.	50.0 mg.
15 minutes.	44.4 mg.
15 minutes.	45.0 mg.
15 minutes.	43.2 mg.
15 minutes.	40.0 mg.

Even with large doses of insulin (we have used up to 400 units) the effect of sugar mobilization from the liver can be determined. In Experiment 8 the effect of 80 units injected subcutaneously (one half) and intravenously on the lymph sugar is demonstrated:

Experiment 8.—Weight of animal, 9 kg.

Lymph samples.

1. 15 minutes. 118 mg. sugar per hundred cubic centimeters of lymph.
2. 117 mg.

Injection of insulin.

3. 5 minutes. 125 mg.
4. 5 minutes. 143 mg.
5. 15 minutes. 143 mg.
6. 15 minutes. 115 mg.
7. 15 minutes. 77.5 mg.
8. 15 minutes. 55 mg.
9. 15 minutes. 48 mg.
10. 15 minutes. 47.6 mg.
11. 15 minutes. 42 mg.
12. 15 minutes. 31 mg.

In all the experiments, it has been determined that after intradermal administration of insulin an immediate decrease of the blood sugar level sets in, followed by a continuously decreasing curve.

The picture immediately following subcutaneous administration is quite different. A rise in the blood sugar curve could be determined after all such injections. This rise was frequently of considerable magnitude.

We would not conclude from these experiments, per se, that only glycogenesis is responsible for the decrease of the blood sugar level which instantly follows the intracutaneous injection of insulin had we no other evidence.[2] The instant effect of the intradermal injection, however, points strongly toward such an interpretation. But we can state with absolute certainty that no glucose mobilization follows the intradermal injection, while a distinct increase of the glucose content of the blood stream follows without exception on subcutaneous injection irrespective of the dosage. Increase of glucose in the blood stream without administration of sugar is possible only if glucose is mobilized by glycogenolysis.

This leads to the logical conclusion that insulin present in the circulation initiates glycogenolysis and in this way to mobilization and increase of glucose in the blood and tissues.

LIVER EFFECT VERSUS HORMONE EFFECT

It may seem paradoxical that insulin present in the circulation should increase the blood sugar when hundreds of reports to the contrary have appeared in every language, but our experiments are so conclusive on this point that it may be warrantable to emphasize their practical and theoretical significance. After insulin has been absorbed, and an artificially initiated blood sugar metabolism sets in, depriving the tissues and the circulating fluids of their sugar content, a continuous mobilization of sugar goes on. This is quite in accord with MacLeod's demonstration of a sugar "vacuum" and the knowledge that every lowering of the blood sugar level initiates glucose mobilization by way of autonomic impulses.

This newly mobilized sugar will no longer be demonstrable if the hormone action of the insulin is intense enough, after fifty minutes or so, to metabolize the glucose. Such metabolism will involve sugar previously present in the blood and tissues, as well as newly mobilized material.

The initiated glycogenolysis varies with the individual liver reactivity of animals as with patients. If large, the metabolized sugar will be rapidly replaced and the apparent insulin effect is but small. If only small amounts of glucose are mobilized by a less intense liver reactivity of other individuals, the metabolized sugar cannot be replaced as rapidly. The actual effect on the total blood sugar is then apparently great and the insulin effect is regarded as intensive.

EPINEPHRIN AND INSULIN

It is known that animals, as well as man, respond differently toward epinephrin as far as glucose mobilization is concerned, and in our experience this individual reactivity remains practically unchanged. Rabbits reacting with intensive glucose mobilization after epinephrin always showed an equally intense rise, while others, with only small response, always reacted in this same fashion with later doses.

From a large series, animals were selected which showed marked differences in the sugar curves following like doses of epinephrin (0.5 mg. per kilogram body weight), and these were used for the following comparative experiments:

A rabbit was selected which reacted repeatedly with an increase of its blood sugar content to 125 per cent. of the original level after epinephrin, while a second showed only a 40 per cent. increase under the same condition.

Insulin (0.5 unit per kilogram of body weight) was administered subcutaneously in these animals with the following result: In the former, the insulin apparently produced a slight effect, the blood sugar decreasing only 22 per cent. in two hours with an increase later. The latter showed a decrease of 65 per cent. of its blood sugar after two hours. Such experiments find a ready explanation. The hormone effect of insulin must be considered equal in both animals. In the first, however, a great part of the metabolized sugar has been replaced by the peculiarly marked glycogenolytic activity of its liver mechanism; in the second rabbit only a small part of the metabolized sugar was so replaced and the insulin effect was apparently, but not actually, much greater.

This explains the individual differences in insulin action after subcutaneous injection in patients, as well as in experimental animals. Many examples of such individual reactivities similar in character were observed in our rabbit series and have, of course, been emphasized by Macleod[3] and other investigators.

Similar individual differences in sugar mobilization occur in human beings, particularly in diabetic patients. We know that the response to insulin depends to a considerable degree on the stage of the disease and the individuality of the patient. It is common experience that, in severe cases of diabetes, the liver has practically lost its glycogenetic power and glucose is mobilized and appears in the blood stream after the slightest disturbance. In such patients much higher doses of insulin are necessary, because too much of the sugar metabolized after insulin injection is promptly replaced by the abnormally augmented glycogenolytic activity of the liver. This fact, because of its connection with insulin shock, has been discussed in another paper.[4]

We have to conclude that individual differences in the reaction of animals and man toward insulin and the habituation toward insulin presumably depend on differences in liver response to sugar mobilizing stimuli. We know that the glycogenolytic activity increases with the severity and progress of diabetes mellitus. This accounts for the difference in the necessary insulin dosage required to lower the blood sugar in such stages of the disease when intensive glucose mobilization rapidly replaces the metabolized sugar.

We have, furthermore, to consider the possibility that the well known habituation toward insulin, with its necessary increase in dosage under certain conditions, is based on a gradually increasing glycogenolytic reactivity of such patients.

Paradoxical as it may seem, the experiments indicate that insulin present in the circulation mobilizes glucose in a manner that seems quite analogous to epinephrin. The intensity of this sugar mobilization depends on the individual glycogenolytic reactivity of the liver; the sugar metabolizing process, based on hormone action, is entirely independent and directly related to the dosage present in the blood stream.

The glycogenolytic activity, one of the outstanding features of the diabetic entity, is markedly increased if insulin is given subcutaneously, and this is particularly noticeable in severe cases by the relatively early habituation toward insulin and the consequent requirement of ever larger dosage.

THE CLINICAL APPLICATION

With subcutaneous insulin treatment, we are certainly able to diminish the actual amount of blood sugar and overcome the dangers associated with continued hyperglycemia. But two features must be clearly distinguished. We must first consider the underlying and as yet unknown derangement, and, secondly, the sequelae of one of its manifestations; namely, the disturbed sugar metabolism, leading to the dangers associated with coma.

The clinically manifest dangers will, of course, be diminished if the sugar metabolism is increased by insulin treatment, a hormone effect which does not necessarily improve the underlying derangement. Indeed, it may intensify one of the outstanding phenomena of the derangement; namely, the abnormal glycogenolytic reactivity of the liver.

Granted that glucose mobilization continues during the time that insulin is present in the blood stream, a strong probability exists that this effect on the liver may actually outlast the hormone effect of the insulin in the tissues. We know from the beautiful experiments of Mann and Magath[5] that with the removal of the liver, mobilization of glucose is excluded, the hormone action of insulin is quite apparently more rapid and intense, and no recovery follows the stage of very low sugar concentration unless glucose is given.

The subcutaneous insulin administration, with its rapid absorption and its action within the circulation and tissues, does not simulate the physiologic mechanism because it initiates glucose mobilization. From clinical experience, we assume that in normal, as in diabetic persons a certain balance is established between glycogensis and glycogenolysis. This balance is, of course, abnormally altered in diabetes, but the body always strives to reestablish a balance even if an abnormally high one. This becomes apparent when insulin is administered and the sugar returns to the preinjection level after the effects have worn off.

With the destruction of sugar in tissues and fluids, more glucose is drawn from the liver, and the already abnormal balance in diabetes is further disturbed. This is true even if we transiently check the symptoms of the disturbed sugar metabolism.

The great discovery of Banting and Best should not be restricted to purely symptomatic treatment, since we know that insulin has a physiologic nerve effect and since we know that this nerve effect can be made available when insulin is deposited intracutaneously.

SUMMARY

1. Insulin absorbed in the circulation initiates an increase in blood sugar by stimulating the liver to mobilize glucose (glycogenolysis).

2. Increased glucose formation and its appearance in the blood stream after subcutaneous insulin injection can be determined directly in the period before the hormone action sets in (from twenty to forty minutes).

3. The continuous mobilization of glucose can be determined by indirect methods, even during the period of hormone action.

4. The reestablishment of the preinsulin level of the blood sugar is probably due to a continued mobilization of glucose. In dehepatized (Mann and Magath) animals, no recovery of sugar values follows after subcutaneous administration.

5. This sugar mobilization or the glycogenolytic reactivity of the liver represents one of the chief factors in the seeming differences which we observe in blood sugar curves of different individuals under apparently similar conditions and with like dosage. This glycogenolytic reactivity probably plays a rôle in habituation toward insulin.

6. The intracutaneous method of administration of insulin in small amounts might seem a more physiologic method for clinical use in less severe cases, in that it avoids glycogenolysis.

---

[3] Macleod, J. J. R., and Orr, M. D.: J. Lab. & Clin. Med. 9:591 (June) 1924.

[4] Müller, E. F., and Petersen, W. F.: Prec. New York Soc. Exper. Biol. & Med., to be published.

[5] Mann, F. C., and Magath, T. B.: Am. J. Physiol. 65:403 (July) 1923.

Clinical Notes, Suggestions and New Instruments

AN EASY METHOD OF INDUCING LOCAL ANESTHESIA FOR SIMPLE AMPUTATION OF THE BREAST *

John S. Lundy, M.D., Rochester, Minn.

The injection of the breast for operations under local anesthesia has not always been easy. Some breasts are small enough so that they can be held in the anesthetist's hand and readily injected. Others, however, are so large and unwieldy that they cannot be easily injected. It is particularly for these cases that the technic described here is used. It is seldom used, for instance, in operating on a male breast.

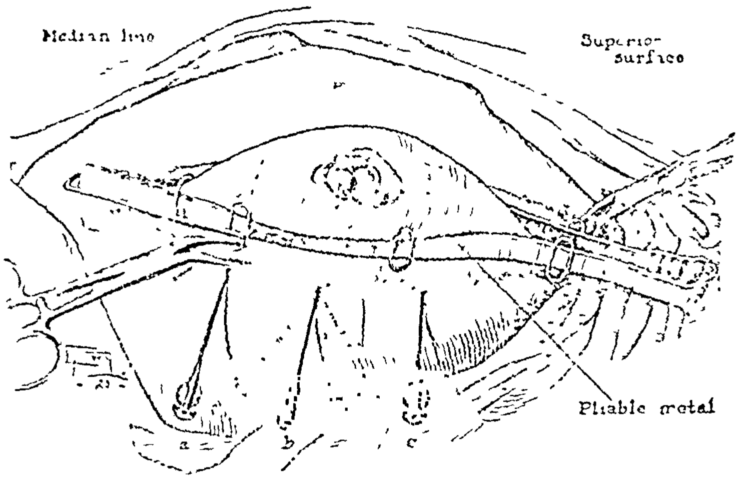


Fig. 1.—Injection for simple breast amputation: metal clamps placed.

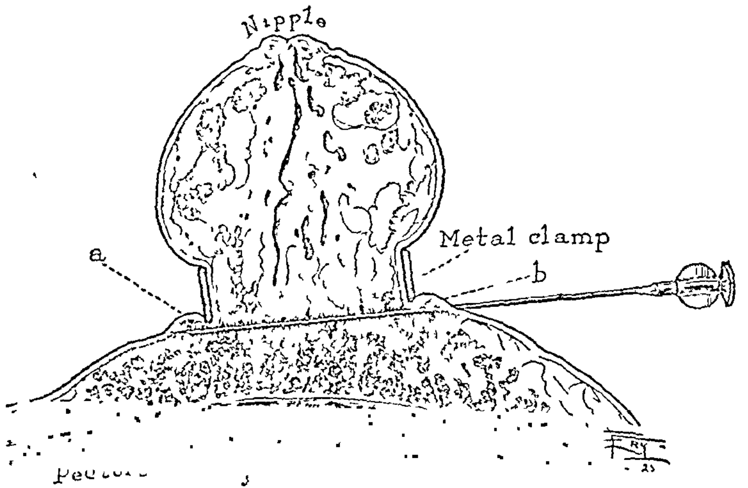


Fig. 2.—Injection for simple breast amputation: section of breast with clamp in position and needle in place; *a*, *b*, ridges raised by subcutaneous infiltration along margins of clamp.

The breast and nearby skin are prepared surgically. The breast is held between the hands of the assistant and elevated so that the outline of the base is changed from round to elliptic. When an assistant is not available, a clamp or handle may be used (Fig. 1) made of pliable, firm metal which can be easily bent, in a moment, to hold a breast in the correct shape, and without pain to the patient. When the clamp is in position, its long axis parallels the long axis of the patient's body. A subcutaneous wheal is made with 0.5 per cent. solution of procain along the lower border of each side of the clamp (Fig. 2 *a* and *b*). The clamp will sometimes slip off a breast unless it is anchored to the cutaneous wheals by towel clips. Metal rings attached to the clamp form loops for the clip to grip (Fig. 1). When one elevates the breast by lifting on the clamp, a space is made for the injection. The base of the breast is narrowed somewhat by the traction on it. Through three lateral punctures, the base of the breast is undermined with the solution to induce sufficient anesthesia so that a sharp needle elicits no pain over that part held in the clamp or between the hands. During this infiltration, the tips of the fingers of the left hand are pressed against the inner edge of the base of the breast. The long needle used in infiltrating the base of the breast is directed inward from the axillary side. The point of the needle can be felt when, at the end of the thrust, it reaches the subcutaneous tissue beneath the left finger tips (Fig. 2 *a*). The needle should not pierce the skin on the mesial side of the breast, and ordinarily but three perforations of the skin of the axillary side are needed to reach any part of the base of the breast with the solution. When released, the breast carries the solution out with it and is ready for operation. The injection forms a layer of solution that isolates the breast from the chest (Fig. 2). The solution lies in and above the pectoral muscles and below the breast. Lumps in the breast are not hidden from the operator by edema, and are therefore not likely to be lost on account of the injection.

The injection is not particularly painful. Anesthesia will last sometimes for one and one-half hours, and I have found it uniformly satisfactory. It permits of mammary incisions and ordinary mammary operations up to, but not exceeding, simple amputation. The solution used is 0.5 per cent. procain in physiologic sodium chlorid solution, with 10 minims of epinephrin to each 100 c.c. The epinephrin may be omitted.

The breast clamp or handle was made for me in the surgical instrument shop of the Mayo Clinic from two strips of hard, rolled monel metal 1.4 by 0.1 by 35 cm., hinged at one end and secured at the other by a series of notches and a movable ring. On each side of the clamp there are three metal loops, the ends of which project slightly beyond the edges of the clamp.

---

* From the Section on Anesthesia, Mayo Clinic.

PERNICIOUS ANEMIA: REPORT OF A CASE WITH UNUSUALLY LONG REMISSION

Will Howard Swan, M.D., Colorado Springs, Colo.

This case is reported because of the long period of remission, from fourteen to sixteen years.[1] The longest remission that I have found recorded was ten or eleven years, reported by Stockton.[2] His patient was without symptoms, except evidence of achylia gastrica, during that time.

REPORT OF CASE

History.—A man, aged 57, whose mother died of anemia and a brother died of anemia (types not known) while the patient was under observation, entered Glockner Sanatorium, April 26, 1921. The patient was always nervous, and never had been strong. In July, 1903, he was weak, lost weight, and had nausea, with occasional vomiting and palpitation. In three months he was much better. In March, 1904, he was worse, and was seen, June 20 of that year, by Dr. Frank Billings, who made a diagnosis of pernicious anemia. In October, 1904, he was seen by Dr. Charles G. Jennings of Detroit, who concurred in the diagnosis.

He spent three months in Colorado, the dates of which are not clear, and stated that he had been entirely well since, except for indefinite digestive complaints, with suspicion of the appendix and gallbladder, till about March 15, 1921. At this time he became pale, weak, dyspneic, and had nausea and discomfort in the right upper abdomen.

Examination.—The man was pale and slightly yellow, and appeared very ill. There was no enlargement of the lymph glands. Nutrition was fair. The teeth were questionable. The lungs were not abnormal. A faint systolic murmur was heard over the whole precordia, but not transmitted outward. The area was not enlarged. There was a tension of the right rectus muscle, with a little tenderness in the right lower quadrant and in the region of the gallbladder. The spleen and liver were barely palpable. Neurologic examination was negative. The urine showed a trace of albumin and a few hyaline casts. Examination of the blood revealed: hemoglobin, 48 per cent.; red cells, 2,208,000; color index, 1.4; white cells, 2,900; polymorphonuclears, 64 per cent.; lymphocytes, 32 per cent.; large mononuclears, 4 per cent. There was marked poikilocytosis and great variation in the size of the red cells, with many large and nucleated forms. There were no malarial plasmodia. The blood Wassermann reaction was negative. The stomach contents showed absence of free hydrochloric acid. The stool showed enormous numbers of *Cercomonas intestinalis*, but no other parasites or ova. There was no occult blood

---

[1] The dates as given by the patient on entrance to the hospital, and recorded in the hospital records, are not quite clear. He stated that he came to Colorado in October, remained well for fourteen years, but if he came to Colorado in October, 1904, and was "well" in three months, as he stated, and remained so till March, 1921, the period of remission must have been sixteen years

[2] Stockton, C. G.: Am. J. M. Sc. 158:471 (Oct.) 1919.

Treatment and Course.—Methylene blue was given by mouth and by colonic douche without evident effect on the flagellates or on the condition. There was more or less nausea and complaint of pain in the right upper quadrant, and numbness of the legs. Blood transfusion was given three times, with only temporary symptomatic improvement. The blood findings steadily became worse. Shortly before death, July 7, 1921, the hemoglobin was 14 per cent, and the red cells, 384,000. Only a limited necropsy was allowed. It is interesting that no appparent abnormality was found about the appendix, gallbladder or gall ducts.

COMMENT

For from fourteen to sixteen years this man was symptomatically well except for vague digestive disturbance. His stomach contents were not examined during this time, but it is reasonable to infer that there was lack of hydrochloric acid, as achylia gastrica seems to be persistent during remission, even though other evidences of the disease disappear.

312 Ferguson Building.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

PROTEINS DRIED-MULFORD.—Atopens Dried-Mulford.—Powders representing the protein of substances believed to be the cause of specific sensitization.

Actions and Uses.—See Allergic Protein Preparations, New and Nonofficial Remedies, 1925, p. 278

Dosage.—Proteins Dried-Mulford are intended for diagnosis only. One Mg. of the dried protein is rubbed into an abrasion of the skin, to which has been applied a drop of physiological solution of sodium chloride or of tenth-normal sodium hydroxide solution The appearance of an urticarial wheal indicates a sensitiveness to the particular protein used.

Proteins Dried-Mulford are marketed in packages of one capillary tube containing a sterile needle and a sufficient amount of the protein for one test; in packages of six capillary tubes, each containing a sterile needle and sufficient protein for one test; and in vials containing 50 Mg. of the protein.

Manufactured by the H K. Mulford Company, Philadelphia. No U S patent or trademark

Almond Protein Dried Mulford^{4}, *Apple Protein Dried Mulford*^{1}, *Asparagus Protein Dried Mulford*^{1}, *Banana Protein Dried Mulford*^{1}, *Barley Protein Dried Mulford*^{7}, *Bean (Lima) Protein Dried Mulford*^{7}, *Bean (Navy) Protein Dried-Mulford*^{7}, *Bean (String) Protein Dried Mulford*^{1}, *Beef Protein Dried Mulford*^{2}, *Beet Protein Dried Mulford*^{1}, *Buckwheat Protein Dried Mulford*^{7}, *Cabbage Protein Dried Mulford*^{1}, *Cantaloupe Protein Dried Mulford*^{1}, *Carrot Protein Dried Mulford*^{1}, *Cat Hair Protein Dried Mulford*^{3}, *Cattle Dander Protein Dried Mulford*^{3}, *Cauliflower Protein Dried Mulford*^{1}, *Celery Protein Dried Mulford*^{1}, *Chicken Protein Dried-Mulford*^{2}, *Chicken Feather Protein Dried Mulford*^{3}, *Clam Protein Dried-Mulford*^{2}, *Cocoa Protein Dried Mulford*^{4}, *Codfish Protein Dried Mulford*^{2}, *Coffee Protein Dried Mulford*^{7}, *Coli (Communis) Bacillus Protein Dried Mulford*^{10}, *Corn Protein Dried-Mulford*^{7}, *Cucumber Protein Dried-Mulford*^{1}, *Diphtheroid (Polyvalent) Bacillus Protein Dried Mulford*^{10}, *Dog Hair Protein Dried Mulford*^{3}, *Dysentery Bacillus (Polyvalent) Protein Dried Mulford*^{10}, *Eggplant Protein Dried Mulford*^{1}, *Egg White Protein Dried Mulford*^{5}, *Egg Yolk Protein Dried Mulford*^{5}, *Flaxseed Protein Dried Mulford*^{11}, *Friedlander Bacillus Protein Dried Mulford*^{10}, *Goose Feather Protein Dried Mulford*^{3}, *Gonococcus Bacillus (Polyvalent) Protein Dried Mulford*^{10}, *Guinea Pig Hair Protein Dried Mulford*^{3}, *Horse Dander Protein Dried Mulford*^{3}, *Horse Serum Protein Dried-Mulford*^{6}, *Influenza Bacillus Protein Dried-Mulford*^{10}, *Kapok Protein Dried-Mulford*^{12}, *Lamb Protein Dried-Mulford*^{2}, *Lettuce Protein Dried-Mulford*^{1}, *Lobster Protein Dried-Mulford*^{3}, *Mackerel Protein Dried-Mulford*^{2}, *Meningococcus Bacillus (Polyvalent) Protein Dried Mulford*^{10}, *Micrococcus Catarrhalis Bacillus Protein Dried Mulford*^{10}, *Milk Protein Dried-Mulford*^{9}, *Mushroom Protein Dried-Mulford*^{3}, *Oat Protein Dried Mulford*^{7}, *Onion Protein Dried Mulford*^{1}, *Orange Protein Dried Mulford*^{1}, *Orris Root Protein Dried Mulford*^{4}, *Oyster Protein Dried-Mulford*^{2}, *Paratyphosus Bacillus A Protein Dried Mulford*^{10}, *Paratyphosus Bacillus "B" Protein Dried-Mulford*^{10}, *Pertussis Bacillus (Polyvalent) Protein Dried-Mulford*^{10}, *Pea Protein Dried Mulford*^{7}, *Peanut Protein Dried-Mulford*^{4}, *Pepper (Black) Protein Dried Mulford*^{4}, *Pneumococcus Bacillus (Polyvalent) Protein Dried-Mulford*^{9}, *Pork Protein Dried-Mulford*^{2}, *Potato Protein Dried Mulford*^{7}, *Rabbit Hair Protein Dried Mulford*^{3}, *Rice Protein Dried Mulford*^{7}, *Rice Powder (Polish.) Protein Dried Mulford*^{7}, *Rye Protein Dried-Mulford*^{7}, *Salmon Protein Dried-Mulford*^{2}, *Spinach Protein Dried Mulford*^{1}, *Squash Protein Dried Mulford*^{1}, *Strawberry Protein Dried-Mulford*^{1}, *Sheep's Wool Protein Dried Mulford*^{3}, *Staphylococcus Bacillus (Albus and Aureus) Protein Dried-Mulford*^{10}, *Streptococcus Bacillus (Polyvalent) Protein Dried Mulford*^{10}, *Sweet Potato Protein Dried-Mulford*^{1}, *Tea Protein Dried Mulford*^{7}, *Tomato Protein Dried-Mulford*^{1}, *Tobacco Protein Dried Mulford*^{7}, *Tubercle Bacillus (Human) Protein Dried-Mulford*^{10}, *Tubercle Bacillus (Bovine) Protein Dried-Mulford*^{10}, *Typhosus Bacillus Protein Dried-Mulford*^{10}, *Veal Protein Dried Mulford*^{2}, *Walnut Protein Dried-Mulford*^{4}, *Wheat Protein Dried Mulford.*^{7}

Products marked (1) are prepared by the following method: The peel, if any, is removed, the substance is minced in a grinder. The ground material is spread out on pans and placed in an incubator at 37.5 C. until thoroughly dried. It is then powdered in a mortar and sifted through a fine bolting cloth

Products marked (2) are prepared in the following manner: The substance is minced in a grinder and acetone is added. It is shaken thoroughly and transferred to a filter. More acetone is added until all traces of fat are removed. The acetone is then evaporated off and the residue is powdered in a mortar and sifted through fine bolting cloth

Products marked (3) are prepared in the following manner: The substance, immersed in a 0.2 per cent. solution of sodium hydroxide, is subjected to heat at 65 C. for one hour. After cooling, the mixture is strained through cheese cloth, paper filtered, and precipitated with acetic acid (36 per cent) The precipitate collected is redissolved in 0 2 per cent solution of sodium hydroxide, filtered, and again precipitated with acetic acid. The precipitate collected is dried, powdered in a mortar, and sifted through bolting cloth

Products marked (4) are prepared in the following manner: The shell, if any, is removed, and the substance is ground through a fine meat grinder (when required), and the oil extracted with ether. The residue is then powdered in a mortar and sifted through bolting cloth.

Products marked (5) are prepared in the following manner: The white and yolk, respectively, are separated, and coagulated with acetone. Each is then dried, ground and sifted

Products marked (6) are prepared in the following manner: The serum is evaporated to dryness without the application of heat. The dried substance is then ground to a powder.

Products marked (7) are prepared in the following manner: The substance is treated for one hour with a 0.2 per cent. solution of sodium hydroxide. The mixture is strained through cheese cloth, paper filtered, and precipitated with acetic acid (36 per cent). The precipitate collected is redissolved in 0 2 per cent. solution of sodium hydroxide, filtered and again precipitated with acetic acid. The precipitate collected is dried, powdered in a mortar, and sifted through bolting cloth.

Products marked (8) are prepared in the following manner: The substance is washed in chloroform and allowed to dry. It is then ground in a mortar and sifted through a bolting cloth.

The product marked (9) is prepared in the following manner: The milk is precipitated with acetic acid (36 per cent.). The precipitate is collected, and allowed to dry. It is then ground in a mortar and sifted through a bolting cloth.

The products marked (10) are prepared in the following manner: A large growth of bacteria is harvested from a common culture medium, washed with sterile distilled water, and dried. The drying process includes rubbing the bacterial harvest in a mortar with equal parts of acetone and ether, repeating the process as often as necessary. The resulting paste is extracted with ether until it is thoroughly powdery when dried It is then ground in a mortar and sifted

The products marked (11) are prepared in the following manner: The seed is ground, washed with ether, extracted with 0 2 per cent. solution of sodium hydroxide, filtered, and precipitated with acetic acid The precipitate is dried and powdered.

The product marked (12) is prepared in the following manner: The fiber is extracted with 0 2 per cent. solution of sodium hydroxide at 65 C. for four hours, filtered, and precipitated with acetic acid. The precipitate is dried and powdered.

RADON (See New and Nonofficial Remedies, 1925, p. 313).

Radon-Standard Chemical Co.—A brand of radon-N. N. R. It is supplied in the form of "implants" (minute glass tubes suitable for embedding in tumors) and in the form of larger tubes. Radon-Standard Chemical Co. is sold on the basis of its gamma ray activity, as determined by comparison with a radium standard

Manufactured by the Standard Chemical Co, Pittsburgh (Radium Chemical Co, Pittsburgh, distributor). No U S. patent or trademark.

The County Health Officer.—In the absence of specific legal authority to name or to approve the appointment of the county health officer, the use or the withholding of state financial aid often serves the purpose. The position should be removed from partisan political control on the part either of the state or of the county, and the local authorities should be given all possible responsibility with efficient service. The county medical society's support of the project is important, and, where the laws permit, its indorsement of the person appointed as health officer should be secured.—Parran, Thomas, Jr.: *Pub. Health Rep.* **40**:986 (May 15) 1925.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - - Chicago, Ill.

Cable Address : : : : "Medic, Chicago"

Subscription price : - - - - - : Five dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, SEPTEMBER 12, 1925

IMMUNIZATION OF ANTHROPOID APES AGAINST TUBERCULOSIS

The first detailed report of a long projected experiment on the vaccination of monkeys against tuberculosis in their native environment has recently been published. From time to time[1] there have appeared in French medical literature accounts of research on the immunizing power of a bacillary vaccine, prepared by Calmette and Guérin, and called for simplicity BCG. This vaccine consists of tubercle bacilli greatly reduced in virulence by prolonged cultivation on potato or agar saturated with bile containing 5 per cent. glycerol. Calmette and Guérin have repeatedly asserted that this vaccine confers immunity without producing anatomic tubercle. According to Calmette,[2] the only effect of massive injection of this bacillus is "general disease which is like typhoid fever and which cures itself spontaneously after fifteen to twenty days without producing the slightest tubercle formation." Yet calves, guinea-pigs, rabbits and monkeys treated with doses of a few milligrams of the substance, according to the accounts, appear to become highly resistant to infection with virulent tubercle bacilli.

The latest stage of this investigation, a phase planned by Calmette years ago, but postponed by the war and the distress left in its wake, has dealt with the infection of man's nearest biologic relations in their natural environment. A series of experiments truly romantic in their conception and prosecution have been carried out in a tropical environment on the coast of French West Africa, under the auspices of the newly created Pasteur Institute of Kindia. The effort has been made to simulate human conditions as far as is possible in any animal experiment, through the use of the manlike apes and chimpanzees, close to their native home and exposed to infection in natural ways, but under scientific control. One may perhaps judge how earnest has been the effort to approximate human rather than laboratory conditions, by the designations conferred on the research material of this simian colony, which answers not to the A_1 or B_{25} of the usual laboratory experiment, but to the more sympathetic appellations of Gertrude, Hector, Ginette, Jacques, Catherine and Tonio.

The results reported by Wilbert,[3] who states that the program of Calmette has been followed, may be thus summarized: Fifteen chimpanzees were studied in three groups. The fifteen included three that were vaccinated with BCG, five that were infected with virulent tubercle bacilli, and seven normal animals, which served as nonvaccinated controls. The groups were so constituted that vaccinated and nonvaccinated animals were exposed equally to infection from the artificially infected animals. The five infected chimpanzees all died of tuberculosis. Of the seven exposed, nonvaccinated controls, four died of tuberculosis and three of intercurrent, nontuberculous infection. The three vaccinated animals have remained in good health. Fifty-nine apes lived under similar conditions of mutual exposure. Of these, nineteen were vaccinated, twenty were infected with virulent tubercle bacilli, and twenty served as noninfected, nonvaccinated controls. Of the nineteen vaccinated, eleven died of various causes without showing any evidence of tuberculosis at necropsy. The other eight have remained in good health. Of the twenty nonvaccinated controls, nineteen died of tuberculosis and one of intercurrent acute infection. Of the twenty infected animals that were allowed to spread their infection to the other animals of the series, nineteen died of tuberculosis and one of intestinal obstruction.

Two methods were used in the vaccination, ingestion and subcutaneous inoculation. They proved equally effective. One hundred milligrams of BCG was tolerated by the animals without harm. No tuberculous lesions were produced by the vaccine. The only change noted was a transient swelling of the lymph nodes regional to the site of subcutaneous inoculation. The usual procedure was subcutaneous inoculation with 50 mg., or five ingestions of 50 mg., each at intervals of from eight to ten days. In a few instances, the vaccination was repeated after some months. Wilbert is satisfied that the means employed have conferred resistance lasting at least one year, and that new protection can be given by revaccination.

The results are promising, to say the least. They are presented by Wilbert in condensed form, with little comment and without extravagant claim. The spirit of the report is that which has animated this investigation since its inception fifteen years ago: free imagination in its planning, but conservatism in the reporting and interpretation of results. Throughout its course a temperate reluctance to publish prophecy has been exhibited, and in the latest article no hint is given of the hopes or fears of the author and his collaborators concerning that toward which they are obviously striving, vaccination in man.

---

[1] Artificial Immunization Against Tuberculosis, editorial, J. A. M. A. **76**: 314 (Jan. 29) 1921. Calmette, A., and Guérin, C.: Vaccination des bovidés contre la tuberculose et méthode nouvelle de prophylaxie de la tuberculose bovine, Ann. d. l'Inst. Pasteur **38**: 371 (May) 1924.

[2] Calmette, A.: L'infection bacillaire et la tuberculose, Ed. 2, Paris, Masson & Cie, 1922, p. 608.

[3] Wilbert, J.: Expériences de vaccination des singes contre la tuberculose par le BCG, Ann. d. l'Inst. Pasteur **39**: 641 (Aug.) 1925.

The members of the medical profession, however, are veterans with respect to tuberculosis cures and immunizing methods. Thirty years of dashed hopes have followed Koch's first reports of the immunizing properties of tuberculin. It takes more than one favorable report now to convince any one of any discovery in the therapy of tuberculosis. The present attitude is a skepticism directly proportional to the enthusiasm of the latest claimant in the fertile field of tuberculosis cures, which for years has produced at least one sure tuberculosis remedy a month. The Calmette method, on the other hand, has been developed with such steadiness of purpose and simplicity of claim as to command close attention and constantly interested expectancy.

THE SEMICENTENNIAL OF THE AMERICAN AGRICULTURAL EXPERIMENT STATIONS

Medical education can no longer be described or discussed apart from general education. It is likewise true that the medical sciences cannot be intelligently considered apart from the natural and physical sciences in general. The special studies of the medical student, as Flexner has remarked, begin everywhere with physics, chemistry and biology. The investigator—even the clinical investigator—is constantly driven back on them; not only does he need good fundamental training in the basic sciences before beginning his medical course, but from time to time he must endeavor by contact and study to keep himself fairly abreast of their progress. Without a firm and clear grasp of the basic sciences, Flexner adds, the practitioner cannot comprehend his medical subjects as a student, or read and utilize the current literature when in practice.

We have become accustomed to think of agriculture as an art so far apart from medicine that we rarely stop to consider how much of the scientific background of these vocations is common to the two or how much their scientific experiences interplay. The agriculturist, like the physician, is emerging from the artisan type; he is seeking to formulate his endeavors in a rational manner and to replace empiricism by scientific formulas wherever this has become possible. Allen[1] has recently pointed out that the nineteenth century not only witnessed the greatest revolution in farm practice the world had known but also ushered in the beginning of systematic research in agriculture, notably in agricultural chemistry. This development has brought with it innumerable contributions from which medical sciences have benefited greatly. Agriculture deals with manifestations of life both in plants and in animals. The analogues of their functions are found in large measure in the human organism. The principles of growth, the laws of heredity, the fundaments of biochemistry, biophysics, bacteriology and pathology are of common interest. Our medical eyes too infrequently see the outlying beginning of our interests in the domain of other vocations.

The coming days are to celebrate the establishment in America of the agricultural experiment station, "that powerful agency for applied science that has few counterparts, and that has spread to every civilized country." A national observance will take place in October at New Haven, in Connecticut, where the station system started fifty years ago with an appropriation of less than $3,000. Today the experiment stations, with an aggregate maintenance fund of $10,000,000 a year, together with the federal Department of Agriculture, constitute one of the most powerful agencies for the benefit of human welfare and well being.

The discovery of the transmission of disease by an insect vector may rightly be regarded as a by-product of agricultural research, since it had a beginning in the study of disease of cattle carried by a tick. In large measure the study of human food and nutrition in this country originated from the experiment stations. The work done there and in the federal bureaus has been one of the chief means of bringing home the importance of proper nutrition and the basis for it. Allen has reminded us that the subject of vitamins, their sources, the types of malnutrition, such as rickets and scurvy, and other deficiency disorders has long engaged the attention of the experiment stations. Hence the medical fraternity rejoices with the devotees of agriculture in hailing a semicentennial anniversary reminiscent of notable scientific achievements in channels that were new.

THE METABOLIC DIFFERENCES BETWEEN CANCER CELLS AND NORMAL CELLS

While the pathologists have been looking for either a specific exciting cause or a specific diagnostic reaction for cancer, the biochemists have been searching for some characteristic chemical or functional peculiarity in the cancer cells that might explain their behavior, and perhaps their pathogenesis. For the most part the efforts of both groups of investigators have been unsuccessful. Such methods as we have for tissue analysis have failed to show wherein cancer cells differ from the cells from which they have taken their origin. This is not surprising in view of the relative crudeness of the available methods and the fact that they concern themselves merely with the dead protoplasm and not with the living cells. Furthermore, even such a refined immunologic method as the complement fixation test fails to disclose the presence in cancer of any protein or other antigenic substance that is peculiar to cancer tissue. That no great chemical difference exists between cancer cells and normal cells is further attested by the fact that the two may be capable of manufacturing the same sorts of complex metabolic products; for example, a cancer arising in the thyroid may manufacture thyroxin and store iodin, a melanotic tumor produces the same sort of pigment as do cells from which it arose, and a carcinoma of the skin produces keratin identical with that formed by normal cutaneous epithelium.

---

[1] Allen, E. W.: Research in the Service of the State, Science 62: 165 (Aug. 21) 1925.

Evidently, then, if there are chemical differences between normal cells and cancer cells, these are probably quantitative rather than qualitative. Of course, it is not so satisfactory to demonstrate relative as it is to demonstrate absolute differences, but so far this seems to be the best that can be done. Like all rapidly growing tissues, the cancer cells have a relatively large proportion of water and potassium; but their proteins seem to be made up in the same way as normal proteins. Their equipment of enzymes seems also to be about the same as in normal cells, although the extensive studies of Falk[1] and his colleagues on the enzymatic action of extracts of cancer tissue seem to show that proteolysis and lipolysis are less active and perhaps of somewhat different character than with extracts of normal tissues, at least under the conditions of their experiments. Investigations of the oxidative or respiratory mechanism of tumors have of late been particularly active, with some suggestive results. Much of this work has been carried out in the laboratory of Otto Warburg in Berlin, who, while in this country last year, presented a concise review of the results obtained.[2] The starting point of Warburg's studies lay in the observation that the respiration of sea urchin eggs increases sixfold immediately after fertilization, presumably to supply energy for growth. This led to the assumption that rapidly growing cancer cells should show a correspondingly high rate of respiration; but experiment showed that the reverse was the case, for the cancer cells use much less oxygen than normal tissues under the same experimental conditions. It was soon found that this is because the cancer cells produce from glucose large quantities of lactic acid, which soon inhibits cell activity unless neutralized. Now the formation of lactic acid from glucose is an important method of securing energy without oxidation, for glucose splits directly into lactic acid according to the equation, $C_6H_{12}O_6 = 2\,C_3H_6O_3$. Hence lactic acid is characteristically produced under conditions of asphyxia, for when oxygen is present the lactic acid is promptly burned.

Warburg has found that tumor cells exhibit as a metabolic characteristic the tendency to form relatively large amounts of lactic acid from glucose, not only when asphyxiated but even when oxygen is supplied. How tremendous this splitting metabolism is becomes clear on a comparison with the well known data available on glycolysis in blood or frog muscle. In a unit time, tumor tissue produces 100 times as much lactic acid as does blood, 200 times as much as frog's muscle at rest, and eight times as much as frog's muscle working to the limit of its normal efficiency. When cancer tissue attacks glucose in the presence of oxygen it does burn some of the lactic acid, but still it forms much more lactic acid than normal tissues do under the same condition; that is, the metabolism of normal tissues is predominatingly oxidative, while with cancer tissue oxidation is subsidiary to glycolysis, with lactic acid formation as the end-result. Benign tumors seem to be intermediate between malignant and normal tissues in these respects, corroborating the experience gained from pathology; namely, that the differences between malignant and benign tumors are differences in degree rather than in kind. Normal embryonic tissue is again intermediate between benign tumors and resting adult tissues, in that while much lactic acid is formed under anaerobic conditions, in the presence of oxygen little or no lactic acid is formed. Evidently, then, glycolysis is a characteristic feature of growing tissues, and Warburg believes that in the development of carcinomas there is at first the embryonal condition with the large anaerobic glycolysis and a respiration that is in accord with it. In the course of development there follows a stationary condition of the epithelium, with an anaerobic glycolysis that has fallen to one tenth, and with a high respiration. From this stationary condition develop carcinomas, in which the glycolysis again rises tenfold, without a corresponding rise in respiration. The same holds true, so far as we can say at present, for the development of sarcomas from resting connective tissue.

This shows what occurs when a carcinoma or sarcoma arises, but it does not show why it occurs. The observations all point to the view, which has often been suggested by those studying with microscopes the development of cancers, that local oxygen deficiency may lie at the bottom of cancer formation. Warburg suggests that resting epithelium is a mosaic in which few cells glycolyze strongly, while the greater number of the cells do not glycolyze at all. If such a mixture of cells suffers an oxygen deficiency, as by pressure, sclerosis, action of bacteria or other influence, then those cells which are not able to glycolyze must die, while those which are able to glycolyze can continue to live. If the oxygen deficiency continues, then there will arise tissue possessing the glycolytic activity of embryonal tissue; but, since grown under conditions of oxygen want, tissue whose respiration is abnormally slight—in other words, tumor tissue. It remains to be seen whether this hypothesis, which substitutes for the current conception of "irritation" that of "oxygen deficiency," will hold up under future investigation. It at least furnishes chemical support for a theory that has been suggested by anatomic considerations, and also seems to show a more striking metabolic difference between cancer cells and normal cells than had previously been known. There is also some support for the idea that cancer tissue is highly glycolytic in the human body as well as in the test tube experiments, for Braunstein[3] has observed that the development of cancer in patients with diabetes reduces hyperglycemia and increases sugar tolerance.

---

[1] Falk, K. G.: Chemistry of Enzyme Actions, New York, the Chemical Catalog Company, 1924.

[2] Warburg, Otto: The Metabolism of Cancer Cells, J. Cancer Res. 9: 148 (March) 1925.

Current Comment

GLYCEROL—A SUGAR FORMER

It would not be difficult to point in the literature of the physiology of nutrition to evidences that glycerol, or glycerin, as it is more popularly termed, can give rise to sugar in metabolism. This reaction is taken into account at present in estimating the antiketogenic potencies of diets for the patient with diabetes. Just as proteins represent a potential sugar-yielding capacity equivalent to more than half their weight, fats appear to be antiketogenic in proportion to the amount of glycerol that they can yield in their hydrolysis. Despite these well founded features, it is still customary in some quarters to countenance the use of glycerol as a sweetening substitute for sugar in the dietary of diabetic patients. The exchange is of dubious propriety. If further evidence were necessary, it might be found in the recent demonstration that glycerol will combat the symptoms associated with the hypoglycemia of overdosage with insulin. Furthermore, it has been shown in the Hygienic Laboratory of the U. S. Public Health Service[4] that, in animals, glycerol may produce a hyperglycemia of considerable extent and duration, indicating a conversion of the substance into glucose. There is no longer any excuse for misunderstanding.

THE CIRCULATION IN THE ARM

When the hand is suitably warmed, the blood flow assumes a rapidity that makes the circulating fluid arriving in the superficial veins of the part retain its arterial character. This phenomenon is so pronounced that it has recently been proposed to employ the analysis of the hand vein blood in a routine way for securing an index of the composition of arterial blood. It has been known for some time that the oxygen content of "cutaneous blood" obtained from an incision in the skin of the finger is almost identical with that of arterial blood. Goldschmidt and Light[5] of the University of Pennsylvania have recently pointed out in this connection that the rapidity of the blood flow is not the only factor responsible for the arterial character of the blood in the veins of the hand. They have directed attention to the low utilization of oxygen by the tissues of this part. The hand is, mostly, a bony skeleton covered with skin, with only a small amount of tissue that has a vigorous metabolism. The muscles responsible for the movements of its parts are situated principally above the wrist. Consequently, the chemical changes in the hand are relatively lower than those representing the metabolism of the muscular forearm. According to the Philadelphia physiologists, the more superficial veins of the forearm may have a blood of a higher oxygen saturation and a lower carbon dioxid content than deeper veins have. This they regard as evidence that the former blood is derived chiefly from the skin. Closely adjacent veins of the forearm may exhibit differences in their content of blood gases. Rapid blood flow through the hands has been assumed also to facilitate the regulation of body temperature by promoting loss of heat, when this is essential. Goldschmidt and Light offer the suggestion that if the hand is an area of low oxygen consumption due to a paucity of tissue capable of a high level of metabolism, perhaps it is inherently incapable of maintaining its own temperature by its intrinsic heat production. In that event the hand must depend in some measure on the heat of the blood passing through it, which, in turn, would necessitate a comparatively rapid flow of blood. Even the anatomic arrangements in the blood vessels of the fingers seem to facilitate a "continuous flow" in them.

HISTIDIN—A PRECURSOR OF URIC ACID

It has become a familiar biochemical fact that uric acid, a compound about which volumes have been contributed to medical literature, is derived from certain closely related organic substances, the purins. An intake of purin-yielding food, such as liver or sweetbread, is promptly followed by an augmented output of uric acid in the urine. The same end-product arises when there is an extensive breakdown of nuclear matter, such as leukocytes, within the body itself. In leukemia there may consequently be enhanced production of uric acid. But uric acid is present in normal amount in the blood and excreted to some extent, at least, in healthy persons even when they have long subsisted on essentially purin-free diets. This fact has represented a puzzle for the physiology of metabolism, for it is scarcely to be assumed that purins are continually being liberated and oxidized to uric acid in the body without some restitution. How, then, can the purins of nuclear material, and thus uric acid itself, be synthesized in the absence of preformed purins in the food intake? Are they produced de novo from very simple compounds? Heretofore, the evidence has been essentially negative; but the experiments of Rose and Cook[1] at the University of Illinois point to histidin as a likely precursor. This amino-acid is a disintegration product of practically all edible proteins. Feeding experiments show clearly that histidin is one of the growing list of known *indispensable* amino-acids. If the conclusions of Rose and Cook prove to be entirely tenable, as now seems likely, we may reason that histidin is an essential in nutrition because it is required for nuclear synthesis, in which purins play an outstanding part.

---

[3] Braunstein, A.: Klin. Wchnschr. **3:** 788 (April 29) 1924.

[4] Voegtlin, Carl; Thompson, J. W., and Dunn, E. R.: Hyperglycemia Produced by Glycerol, J. Biol. Chem. **64:** 639 (July) 1925.

[5] Goldschmidt, L., and Light, A. B.: A Comparison of the Gaseous Content of Blood from Veins of the Forearm and the Dorsal Surface of the Hand as Indicative of Blood Flow and Metabolic Differences in These Parts, Am. J. Physiol. **73:** 127 (June) 1925.

[1] Rose, W. C., and Cook, K. G.: The Relation of Histidine and Arginine to Creatine and Purine Metabolism, J. Biol. Chem. **64:** 325 (June) 1925.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ARKANSAS

Personal.—Dr. Royal J. Calcote, secretary of the Pulaski County Medical Society and treasurer of the Arkansas State Medical Society, has resigned as medical examiner of the U. S. Veterans' Bureau, which position he has held since 1921, and will resume private practice in Little Rock.

CALIFORNIA

Delinquent Narcotic Registrations.—Collector of Internal Revenue Goodcell, Los Angeles, has notified about 500 physicians, dentists, druggists and others who failed to register and pay the tax for the fiscal year 1925-1926 that after fifteen days their cases would be turned over to federal investigators, and that those who were continuing to dispense narcotics would be liable to prosecution under the Harrison Narcotic Law.

Sued for Changing Letter into Testimonial.—It is reported that a Mrs. Walter F. Keene, Los Angeles, has brought suit for $25,000 against the Brookman Products Company, which manufactures a liniment for rheumatism, on the charge that a letter of hers had been changed and made into a testimonial. Mrs. Keene alleges that a statement to the effect that she had been relieved through the use of the liniment had been changed to read that had it not been for the remedy she probably would not have recovered.

Craddick's "Triclast."—The state board of medical examiners is investigating the case of Joel Edward Craddick, Huntington Beach, to determine whether his "electric robe" treatments have been in violation of the state medical laws. The investigation is said to have been precipitated by the death last April of a patient whom Craddick had under his care. Craddick calls the "electric robe" the "triclast," which is manufactured by the Triune Health Plan of Denver, of which Craddick says he is general manager. The apparatus covers the patient's entire body except the head, and is electrically wired. The patient removes his clothing, dons a rubber bathing suit, puts on "the electric robe," connects it to an electric light plug, and turns on the current. Craddick claims to have treated about 300 persons in the last three months.

CONNECTICUT

Certified Oysters.—State regulations require that oysters sold for food in Connecticut be taken from beds that are certified to by the state department of health as being free from contamination, and that all persons engaged in packing, opening, or handling shucked oysters have a certificate from the state department of health showing that bacteriologic examination has been made of the urine and feces and that they were negative for typhoid and paratyphoid bacilli. The certificate must be renewed each year and after an illness suspected of being typhoid fever. No person shall be employed as a shucker unless he holds such certificate, and who does not carry his certificate with him at all times.

DISTRICT OF COLUMBIA

"The Cosmopolitan University."—It is reported that the so-called "Oriental University," Washington, D. C., whose charter was revoked, Dec. 25, 1923, has secured another charter and will now operate an institution at Popular Hill, Maryland, under a new name, "The Cosmopolitan University."

GEORGIA

Personal.—Dr. Charles T. Nellans has assumed the duties of physician to the federal penitentiary at Atlanta, to succeed Dr. Andrew F. Quillian, resigned.——Dr. Henry G. Mealing, Augusta, has been appointed instructor in medicine in charge of clinical laboratories and assistant physician to Johns Hopkins Medical School, Baltimore.——Drs. Julius D. Johnson, Augusta, and Herbert S. Alden, Decatur, have been appointed assistant resident physicians at the University of Cincinnati.——Dr. Silas C. Rutland, La Grange, has been appointed head of the Troup County Board of Health, to succeed Dr. Carp S. Kinzer, resigned.

ILLINOIS

Hospital News.—The cornerstone of the Merryville Sanitarium at Aurora was laid, August 16. The institution will be conducted by the Sisters of Mercy.

Chiropractor Guilty.—Murray R. Hollowell, a chiropractor of Herrin, was found guilty, August 15, of violating the state medical practice act, it is reported. Hollowell is said to be one of the last chiropractors to practice in Williamson County.

Illegal Practitioner Arrested.—Chief Gray Eagle, an Indian, who has been conducting a "medicine show" at Peoria, was arrested, August 17, on a charge of practicing medicine without a license.

Society News. — Dr. James E. Bellinger, Collinsville, addressed the Madison County Medical Society, Edwardsville, September 2, on "Medicine in the Orient."——The Alton County Medical Society held its annual dinner, August 16, at the Rock Springs Country Club.

INDIANA

Society News.—Twenty-five physicians of Lafayette recently were the guests of Dr. Samuel Pearlman at his summer cottage near Tecumseh Trail.——Members of the Kosciusko County Medical Society held an outing at Webster Lake, July 23, and were addressed by the secretary of the Indiana State Medical Association following a dinner at the Yellow Banks Hotel.

Purdue University's Summer Camps.—The extension division of Purdue University, in cooperation with the state board of health, has for three years fostered summer camps for boys and girls throughout the state. There were fourteen camps this year, with an average of about 200 boys and girls from rural communities in attendance. The state board supervised the sanitation of these camps, the first aid treatment, and the daily "medical talks." The camps were at Vincennes for the counties of Knox, Greene, Washington and Sullivan, and Norman Beatty was the sanitary director; at Versailles for the counties of Ohio, Ripley, Dearborn and Switzerland, and Dr. Arthur L. Oilar was sanitary director; at Valparaiso for the counties of LaPorte, Porter and Lake, and Dr. Harvey W. McKane was the sanitary director; and at Monticello for the counties of White, Carroll and Jasper, and Dr. Thurman B. Rice was the sanitary director.

KANSAS

Dr. Reed Resigns. — C. I. Reed, Ph.D., Lawrence, has resigned as a National Research Council Fellow and as associate professor of physiology, University of Kansas Medical School, to accept the position of associate professor of physiology at Baylor University College of Medicine, Dallas, Texas.

LOUISIANA

Health Unit Reestablished. — The police jury of DeSoto Parish at a recent meeting voted $4,000 appropriation to reestablish the health unit, discontinued a few months ago.

Tuberculosis Clinic.—The New Orleans Anti-Tuberculosis League has opened a third morning clinic which provides clinic service on Monday, Wednesday and Friday. More patients were cared for in the first seven months of this year than during all of 1924.

Milk Conference.—Representatives from every dairy association and other agencies connected with the milk interests have been invited by the state board of health and the milk regulation board to a conference in New Orleans, September 19, to consider the production and sale of milk and milk products in Louisiana and to obtain the cooperation of all concerns in a revision of the dairy laws.

Daylight Milk Delivery.—At a meeting of representatives of New Orleans dairies, the superintendent of the city board of health announced plans to change the time of delivery of milk from early morning hours to the hours of from about 7 a. m. to 7 p. m. Dairymen protested at this meeting against the limit of 100,000 bacteria per cubic centimeter of milk, as allowed in the new ordinance, and suggested a maximum count of 200,000.

Society News.—The Ouachita Parish Medical Society furnished the scientific program at the July meeting of the Shreveport Medical Society at the Charity Hospital, Shreveport. Dr. David I. Hirsch spoke on "The Early Diagnosis of Intestinal Obstruction," and Dr. Francis C. Bennett on "The Use of Nonspecific Proteins in Eye Diseases."——The guest of honor at the August meeting of the Avoyelles Parish Medical Society at Cottonport was Dr. Sylvain B. Wolff, Opelousas, who addressed the society on gunshot wounds.

MAINE

Medical Mayors in Maine.—The *Journal of the Maine Medical Association* notes that recently Dr. Robert J. Wiseman, Lewiston, Dr. Lewis Hodgkins, Ellsworth, and Dr. P. R. Baird, Waterville, have been elected mayors of their respective cities.

Society News.—The Penobscot County Medical Society held a special meeting recently at Newport, and its members were the guests of local physicians. The afternoon was spent at Camp Benson on Sebasticook Lake; in the evening there was a banquet at Josier Inn; Dr. Silas C. Blaisdell, New York, was the principal speaker.

Personal.—Dr. Henry S. Mathewson has been relieved from duty at the Marine Hospital at Portland and ordered to Providence, R. I., for duty, and Dr. George Parcher has been ordered to the Marine Hospital at Portland to succeed Dr. Mathewson. Dr. Parcher formerly served in the Marine Hospital Service at San Francisco and was attached to the office of the superintendent of the foreign marine service, Staten Island, N. Y.

MARYLAND

Typhoid Fever Increase.—Reports from the state department of health show that there were 197 cases of typhoid fever reported in August, in comparison with 156 in August, 1924.

Meat Inspection.—The meat inspection division of the Baltimore City Health Department, recently organized by Dr. Charles Hampson Jones, commissioner of health, began operating, September 1, under the direction of William Brenner. Carrying out the provisions of the meat ordinance passed by the city council, an inspection is being made of slaughterhouses and other places where meat is prepared for sale in the city.

Study of Tropical Animal Life.—Curt P. Richter, Ph.D., of the Henry Phipps Psychiatric Clinic, and Dr. George B. Wislocki, of the department of embryology, Johns Hopkins University, have returned from Central America, where they studied tropical animal life; most of their time was spent at the Institute for Research in Tropical America, which has quarters on an island in Gatun Lake, in the Canal Zone. The institute is maintained by the National Research Council, and by Harvard, Michigan and Johns Hopkins universities. The government has made a preserve of the island so that all forms of life may remain in their primitive environment.

Appointments to Staff of Wilmer Eye Institute.—Appointments to the staff of the Wilmer Eye Institute at Johns Hopkins University Medical School, Baltimore, have been announced as follows: Dr. William Holland Wilmer, director; Dr. Cecil H. Bagley, resident ophthalmologist and instructor in ophthalmology; Drs. Leo J. Goldbach, Alan C. Woods and Clyde A. Clapp, associates in clinical ophthalmology; Drs. Reginald D. West and Dobert Y. Fechtig, instructors in clinical ophthalmology; Drs. R. S. Wygodski, Bernard V. Kelly, Joseph E. Brumbach, Joseph G. O'Brien, Aaron Robinson, Franklin Hazlehurst, Jr., Chester E. Hurwitz, Frank A. Pacienza and Frederick A. Holden, assistants in clinical ophthalmology. Charles L. Burky will do research work. Those who will devote full time to the institute (having no private practice) are Drs. Wilmer, Bagley and Wygodski. The institute will open, October 1, with sixty beds in the Nurses' Home Building of the Johns Hopkins Hospital group; this adjoins the administration building.

MICHIGAN

Luncheon to Colonel Keller.—Former officers of Base Hospital No. 17, which was at Dijon, France, attended a luncheon, August 17, at the Detroit Athletic Club in honor of Col. William L. Keller, M. C., U. S. Army, who was in charge of surgical services at the front during the World War.

Society Reorganized.—At the request of the executive secretary of the state medical society, the county secretary of Cass County Medical Society called a luncheon meeting, at which fifteen of the eighteen physicians in the county were present. It was unanimously agreed to renew the activities of the society, and the old officers were reelected for another year. At the next meeting, a fellowship reunion will be held and a constructive program mapped out.

Typhoid Outbreak.—Twelve cases of typhoid fever were reported at Battle Creek between August 12 and August 27. An investigation by the local health department showed, it is reported, that three of the cases had been "imported" and that nine had been traced to milk supplied by a certain dairy. The sale of milk from the dairy has been discontinued. Five of the cases thought to be due to milk were in children. According to the health officer, Battle Creek has not had for several years a case of typhoid fever which could be traced to a local source.

Analysis of Infant Mortality.—*Public Health* (July) published by the Michigan Department of Health, gives the causes of infant deaths in Michigan in 1924. The total number of infant deaths was 7,088, and the infant mortality rate, 72.2; 23 per cent. of them died in the first day of life; 20.5 per cent. under the first week; 14.5 per cent. under the first month, and 42 per cent. under the first year (over one month). Respiratory diseases caused 13.2 per cent. of the total number of infant deaths, digestive diseases 14 per cent., communicable diseases 7.1 per cent., natal and prenatal causes 56.7 per cent., and all other causes 9 per cent.

Meeting of Trudeau Society.—The Michigan Trudeau Society will meet at Lansing, September 28, in conjunction with the Ingham County Medical Society, and members of the adjoining county medical societies are invited to attend Among the speakers will be Dr. Lawrason Brown, Saranac Lake, N. Y.; Drs. Robert S. Berghoff, Chicago; Herman L. Horwitz, Oak Forest, Ill.; Dr. John Phillips, Cleveland; Dr. Henry L. Taylor, St. Paul; Dr. Jacob J. Singer, St. Louis, and Professor Hallman of the Michigan State College. Dr. William H. Marshall, Flint, is president of the society; Dr. William R. Vis, Grand Rapids, vice president, and Dr. Edwin R. Van der Slice, Lansing, secretary. There will be a banquet in the evening.

Tuberculosis Conference.—The Mississippi Valley Conference on Tubercuolsis will meet at Lansing, September 29-October 1, under the presidency of Dr. Hoyt E. Dearholt, Milwaukee. Dr. Richard M. Olin, state commissioner of health, will deliver the address of welcome. Dr. William C. White, Washington, D. C., will discuss "The Results and Progress of Tuberculosis Research"; Dr. Alfred Henry, Indianapolis, "Our After-Care Responsibility"; Dr. Nathan Levitt, "Personal Experiences with an After-Care Colony"; Dr. Harry A. Pattison, Potts Memorial Hospital, New York, "Methods of Postsanatorium Supervision"; Dr. Robert E Wodehouse, Ottawa, Canada, "European Tuberculosis Work and Ours"; Mr. Homer Folks, New York, "Tuberculosis an Economic Problem," and Mrs. T. B. Sachs, Chicago, "The Trend in Public Health Nursing." The annual banquet will be Tuesday evening, a special feature of which will be the presence of one or more of the founders of the state tuberculosis associations in each state. Dr. Linsly R. Williams, New York, will speak on "The Future of the National Tuberculosis Association." Wednesday evening will be "Play Night"; a program of entertainment has been arranged.

MINNESOTA

Personal.—Dr. John A. Evert, St. Paul, has been appointed chief surgeon of the Northern Pacific Hospital at Glendive, Mont., and will take up his new duties, October 1.——Dr. Bratrud of Warren has made a conditional gift of $5,000 to the Children's Home of Ada.——Dr. Manford O. Oppegaard, Crookston, has been elected president of the Bethesda Hospital; Dr. George A. Morley, vice president, and Dr. William H. Hollands, secretary.

Society News.—Members of the Northern Medical Association held a banquet at Breezy Point Lodge, August 24, following a series of clinics held during the day in Brainerd and addresses by Drs. Russell M. Wilder of the Mayo Clinic, Rochester, and John A. Evert, St. Paul.——Dr. Joseph C. Michael addressed the Hennepin County Medical Society, Minneapolis, September 9, on "Faith and Fake Cures (the Factor of Suggestion in History)."

MISSISSIPPI

Hospital News.—The Chamberlain-Rice Hospital, Natchez, has awarded contracts for the construction of a seventy-five bed hospital which is to be completed in six months.——The Natchez Charity Hospital, Natchez, announces the need of four resident physicians.

New County Health Units.—The Lamar County Board of Supervisors recently appropriated $5,000 to establish a full-time county health unit. The state will provide an equal amount, and the unit will be inaugurated, Jan. 1, 1926. Lamar is one of the smallest counties in the state.——The Attala County board of supervisors recently provided for a full-time county health department, which will begin operating, Jan. 1, 1926.

Personal.—Dr. Newman W. Nanney has been appointed county health officer of Itawamba County.——Dr. Milton W. Robertson, Rienzi, was recently appointed health officer of Alcorn County.——Dr. Clyde Ruff has been elected full-time director of the Lee County Health Department.——Dr. Robert M. Adams, Ripley, has been engaged by the board of health to lecture in connection with the Visual Education Car which was recently equipped and sent into the field by the state board of health.——Dr. William B. Dickins, Greenwood, has been appointed by the governor medical advising member of the state board of graduate nurses, vice Dr. J. H. Fox, resigned.

Vaccination Ordinance.—An ordinance passed by the board of aldermen of Natchez and approved by the mayor, became effective, August 25, provides that "no child, pupil or student shall be enrolled, enter or attend any school within the city unless such child has been successfully vaccinated against smallpox in the last five years, nor shall any child, pupil or student continue to attend any school in the city unless he shall have been successfully vaccinated within the last five years." It is further required that the child, pupil or student shall exhibit to the teacher or principal, on application for enrolment, a certificate of successful vaccination or exhibit the scar thereof, provided this shall not apply to any one who has been vaccinated without success three times within a period of five years, and no parent shall send such child to any school, public or private, or permit him to attend in violation of these provisions. The penalty attached for violation of the ordinance by any parent, guardian or person standing in loco parentis to any child shall, on conviction, be a fine of not more than $100.

MONTANA

Health Conditions.—For the first time in three years tuberculosis in Montana indicates a downward trend, according to the state health department. There were 215 deaths from tuberculosis in the first half of 1925, as compared with 250 deaths in the corresponding period of 1924; a similar condition exists for smallpox, diphtheria, scarlet fever, spotted fever, syphilis, measles, epidemic meningitis and erysipelas. There has been no death from smallpox this year, and there were three before July 1, last year. There has been a drop in the mortality from measles of 93.4 per cent., the number of deaths being sixty-nine in the first half of 1924, and four in the first half of 1925. There has been one death from epidemic meningitis, as against ten in 1924.

NEBRASKA

Change of Address.—The office of the secretary of the Nebraska State Medical Association as well as that of the business office of the *Nebraska State Medical Journal* was moved, September 1, to the McKinley Building, Lincoln.

Personal.—Dr. Roy B. Adams has been appointed school physician of the Lincoln public schools.——Dr. James W. Thomas, Nehawka, is going to Europe soon for a year of study.——Dr. H. H. Theis of Reading, Kan., has been appointed postoffice physician of Omaha.——Dr. Charles Edward Sayre, Norfolk, has been named a member of the team to go to Camp Perry, Ohio, to take part in the national rifle contest. Dr. Lincoln Riley, Wisner, is captain of the team.

NEW JERSEY

Illegal Practitioners Fined.—Dr. Robert W. Dickey, Atlantic City, and Michael Letizia, druggist, Paterson, were tried in July, it is reported, on charges of practicing medicine without a license. Judgment for penalties and costs were entered in both cases. Dr. Dickey is licensed in Ohio and Michigan but apparently not in New Jersey. Letizia is said to have applied for a new trial.

NEW YORK

Personal.—Dr. Radoje M. Taditch, director of the bacteriologic laboratory of the State Hospital at Belgrade, Jugo-Slavia, recently visited the state department of health at Albany in the course of studies at Johns Hopkins University under the auspices of the Rockefeller Foundation. Dr. Taditch will be assistant professor of hygiene on his return in the Belgrade Medical School.

Rochester University Assets.—According to the annual report of the treasurer of the University of Rochester, Rochester, the assets of that institution have increased in the last year to almost $47,000,000, and the total income of the university is about three times as great as it was two years ago. The report does not include, it is reported, gifts of more than $17,000,000 made by Mr. George Eastman.

Typhoid Outbreak.—Five cases of typhoid developed in Greenwich and Fort Edward, in July, and were traced by the local health officer to a laborer at a dairy from which all of these patients obtained milk. Sixteen years ago this patient had a "fever" lasting six weeks. It was also learned that after he was employed on another farm last year his employer developed typhoid fever. He was found to be a typhoid carrier.

Syphilitic Insane.—The State Hospital Commission has reported that 911 of the insane persons admitted to institutions for the year ending June 30, 1924, owed their insanity to syphilis, and that it has been found that the average stay in the state institutions of the syphilitic insane is one and one-half years. The cost of maintenance averages $637.50 for each syphilitic insane patient, or an estimated cost for 911 patients of $580,762.

Requests for Poliomyelitis Serum.—The state department of health requests that physicians knowing of persons who have recently recovered from poliomyelitis and who will act as donors of blood, communicate with the Division of Laboratories and Research, State Department of Health, Albany. Three patients undergoing treatment at the Reconstruction Home at Elmira and nine at the home in Ithaca volunteered, but this supply is almost exhausted. Requests are being received from various parts of the state for immune serum for the treatment of early cases.

New York City

Hospital News.—Construction work has been started on the new Long Beach Hospital, occupying most of the block bounded by Franklin and Lincoln boulevards, and Water and State streets. The site was donated by William H. Reynolds. The building itself will represent an expenditure of $100,000.

Personals.—Dr. Alfred Sordelli, director of the bacteriologic institute, National Board of Health of Argentina, is in the city studying local methods for treating contagious and infectious disease.——Sir George Lenthal Cheatle, surgeon to King's College Hospital, London, arrived in this country, August 28.

Beekman Street Hospital Free of Debt.—The statement issued, September 5, by the Beekman Street Hospital, which recently completed building additions and installed new equipment, indicates that the $350,000 campaign for funds has cleared the hospital of all debt; in the first six months of this year there was a marked increase in the demand for service, 20 per cent. more patients having been admitted than in the first six months of last year.

Scholarships for the Blind.—As a result of years of experimental work in teaching music to the blind, the Master Institute of United Arts announces several scholarships in music for the blind which will be awarded for the first time this season; a special department of music for the blind has been founded at the institute. Scholarships will be awarded only after trials to convince the directors that the applicants are worthy. Applications should be addressed to the institute before September 15.

Hadassah Medical Organization.—In a report on the Jewish health agencies in Palestine, the secretary of the Palestine Health Council said that the Hadassah Medical Organization in the last two years increased the capacity of its hospitals in Jerusalem, Haifa, Safed and Tel-Aviv from 289 in 1923 to 328 in 1924, that the patients attending the clinics increased 3,797 and the number of treatments 6,142. The Roentgen Institute in the Rothschild Hospital in Jerusalem, which was made possible by contributions from the American Jewish Physicians' Committee and the Hadassah was opened in 1924. The campaign against trachoma was extended to all the agricultural settlements and the infant welfare work extended by the opening of new stations in Tiberias, Petach, Tikwah and Rehoboth and by increasing the number of stations in Jerusalem to four. The Hadassah Medical Organization was instrumental in providing the first "health week" to be observed in Palestine. The budget of the Hadassah Medical Organization totals a half million dollars, 16 per cent. of which is contributed by the people of Palestine, 25 per cent. by the Keren Hayesod and more than 55 per cent. by Hadassah, the Women's Zionist Organization.

NORTH CAROLINA

Personal.—Dr. John L. Carroll, Asheville, has been appointed coroner of Buncombe County, vice Dr. William H. Scruggs, Jr., resigned.

Committee Meeting.—The committee recently appointed by the governor to investigate the needs of the Caswell Training School for Feeble-Minded, the particular work it will undertake in the future and to make recommendations to the next session of the general assembly, met in the governor's office in Raleigh, September 2. The committee is composed of Dr. Watson S. Rankin, Raleigh, chairman; Dr. Thurman D. Kitchin, Wake Forest; Dr. James W. Vernon, Morganton, and the following representative business men: W. C. Dowd, Charlotte; Gilbert Stephenson, Raleigh; Nathan O'Berry, Goldsboro; Henry Page, Aberdeen, and J. O. Carr, Wilmington.

Hospital News.—Following the removal of the former chief surgeon, Dr. Harris H. Bass, to Philadelphia, the stockholders of the Sarah Elizabeth Hospital, Henderson, have ordered the equipment and buildings sold; it is the purpose of the corporation to dissolve.——Plans have been made by the Watts Hospital, West Durham, to construct a seventy-five bed maternity and children's building.——Drs. William D. McLelland, George W. Taylor, Marvin A. Lackey, A. B. Sloan, Andrew E. Bell and William E. Wilson have filed papers of incorporation in Iredell County for a new hospital at Mooresville, with a capital stock of $100,000. The site of the proposed hospital, valued at $10,000, has been donated by Mr. S. A. Lawrence of that city.

OHIO

Outbreak of Septic Sore Throat.—The state department of health is investigating an outbreak of septic sore throat at Logan. Sixty-six of the seventy cases reported are said to have been on a single milk route.

Illegal Practitioner Fined.—O. C. Collins of Edison, who recently was arrested on a charge of practicing medicine without a license at Mount Gilead, and was held under bond, pleaded guilty to the charge and was fined $50, it is reported. Collins was arrested at the request of a state medical inspector.

Chiropractor Arrested.—An investigator for the state medical board caused the arrest of J. J. Bolender, a chiropractor of Urbana, August 31, it is reported, on a charge of "knowingly and wilfully announcing himself as a practitioner of medicine and surgery before he had obtained a certificate from the state medical board."

Lectures on Goiter Prevention.—Dr. John E. Monger, director of the state department of health, announced, August 25, that Dr. Oliver P. Kimball, Cleveland, had joined the staff of the state health department on a part-time basis for work in goiter prevention, and that Dr. Kimball will lecture at the state fair on that subject.

OREGON

Personal.—Dr. Allen K. Krause, Johns Hopkins University Medical School, Baltimore, gave an illustrated lecture before the City and County Medical Society at Portland, August 24, on tuberculosis.

PENNSYLVANIA

Camp for Children.—At the Mont Alto and Cresson sanatoriums for undernourished children, nearly a thousand patients from all sections of the state were given six weeks' treatment, including heliotherapy. The state department of health says that nowhere in the United States has this successful and scientific treatment been applied so vigorously and comprehensively.

Hospital News.—The Washington Hospital, Washington, has let the contract for a $700,000 building.——The new tuberculosis hospital of Lackawanna County was formally opened, July 10.——The new Veterans' Bureau Hospital for Tuberculosis at Aspinwall was completed, July 29. It has many private rooms for advanced cases and a total capacity of 250 beds, and is of modern construction and equipment in every particular.

Personal.—Dr. Robert F. Trainer and Dr. Ernest T. Williams have been elected medical inspectors of the medical schools of Williamsport.——Dr. Edward J. G. Beardsley addressed the Central Pennsylvania Medical Association, Birmingham, September 2, on practical preventive medicine.——Dr. William J. McConnell, Pittsburgh, has been added to the staff of the Philadelphia Health Council and Tuberculosis Committee as medical secretary and clinician.

Teaching the History of Medicine.—The *Pittsburgh Medical Bulletin* notes that the House of Delegates of the Pennsylvania State Medical Society, at its last meeting, passed a resolution urging the medical schools, colleges and universities affiliated with the state society in Pennsylvania to establish a professorship or lectureship for teaching the history of medicine, devoting at least one hour each week during the academic year to this subject. Cornell University, New York, recently established a chair of history of medicine, with Dr. Charles L. Dana as professor.

SOUTH DAKOTA

Physical Examinations for Boys' and Girls' Clubs.—Plans are being made to provide a physical examination for every boy and girl of the Farm Clubs who attends the state fair this year. South Dakota was the first state to give this service to its boys' and girls' clubs, according to the *Journal-Lancet.* The work, undertaken under the auspices of the state board of health and the state medical association, has met with such interest that the state college has made it a permanent part of the club program, and the state fair board is adding permanent examining rooms and providing additional space in the public health building for this feature.

TEXAS

Meeting of Sanitarians.—The third annual meeting of the Texas Association of Sanitarians will be in Waco, October 7-10, under the joint auspices of Baylor University, the state board of health and the city of Waco. Among the visiting speakers will be representatives of the American Public Health Association and the U. S. Public Health Service. Dr. A. H. Flickwir, city health officer of Houston, is the president of the association.

UTAH

Public Welfare Among Miners.—The Department of Commerce has conducted an investigation of public welfare and safety in connection with mining in Utah. It found that every mining camp in Utah has modern fireproof school buildings, many of which are among the best constructed in in the state, and that many coal mining towns are above the average in housing, water supply, sewage disposal and recreational facilities. The town of Hiawatha, for example, is said to be one of the most modern and well planned coal mining camps in the United States. It has attractive, well constructed houses, boarding houses and offices, public school buildings, teachers' dormitories and an exceptionally large and complete amusement building, in the operation of which profits derived from the motion picture theater, renting of lodge rooms, and bowling alleys are devoted to community social and welfare purposes. The Utah Copper Company has spent $800,000 since 1920 in erecting brick cottages, apartment houses and a club building in Bingham Canyon. The Gemmell Memorial Club, erected and equipped by this company at a cost of $175,000, was provided for the employees as a recreational center. Since 1920 the U. S. Bureau of Mines rescue car has trained 3,187 men in Utah in mine rescue work. There has been very little progress in the reduction of accidents in underground work but a decided reduction in the number of accidents at the smelters and concentrators. This is partly explained by the employment of whole-time safety engineers at the smelters, who inspect all safety devices, install safeguards and train employes in safety practices. There are no such safety engineers as yet employed in the underground work.

WASHINGTON

Medical Diploma Stolen.—The attention of members of state examining boards is called to the theft of the medical diploma of Dr. George Nelson Belyea of Bellingham, which was taken from his office, August 11. The diploma was issued by McGill University, June 23, 1919.

Personal.—Dr. William M. Newman, Spokane, has been appointed county physician, to succeed Dr. Thomas C. Barnhart, resigned.——Dr. Harry V. Wurdemann, Seattle, Lieut.-Col., Officers' Reserve Corps, has been elected for the third time president of the Reserve Officers' Association for the State of Washington.

WEST VIRGINIA

Law to Restrict Prostitution and Venereal Diseases.—The Injunction and Abatement Act, passed by the 1925 legislature, declares that buildings and places used for purposes of prostitution are nuisances, authorizes suits in equity to enjoin their operation and provides penalties for the violation of any injunction that may be issued. More than forty states have passed similar acts.

Ice Cream Investigation.—The health department of Wheeling has completed an investigation of the sanitary conditions under which ice cream is manufactured in that community to determine if the requirements of the city ordinance are being fulfilled. The ordinance requires a minimum of 8 per cent. butter fat in ice cream and a bacterial count of less than 500,000 per cubic centimeter. The results of the examination of the eighteen manufacturing plants showed that all met the requirement as to butter fat. There were four plants, however, in which the ice cream examined contained from 1,130,000 bacteria per cubic centimeter to 2,500,000. The bacteria in all other ice creams ranged from 500,000 to 70,000.

WISCONSIN

Codification of Laws.—The September number of the *Wisconsin Medical Journal* contains a codification of the Wisconsin statutes covering the field of "Treating the Sick."

County Registration.—Attorney General E. Kern has ruled that a physician must register in each county in Wisconsin in which he practices. The ruling was made at the request of the state society through the secretary of the board of medical examiners, and was the result of the moving of a physician who had long been in practice. The opinion supersedes the former ruling that this registration was not necessary.

State Medical Meeting.—The president of the Wisconsin State Medical Society extends a cordial invitation to any member of the American Medical Association to be guests of the state society at its seventy-ninth annual meeting at the Auditorium, Milwaukee, September 16-18. The scientific programs begin at 9 o'clock Wednesday, September 16, at the Auditorium; the House of Delegates meets at the Pfister Hotel the preceding evening, at which place a smoker will be held Wednesday evening for the discussion of "sociomedical" problems, and at which hotel the annual banquet (informal) will be held Thursday evening. Drs. Malcolm L. Harris, Chicago, chairman of the Judicial Council of the American Medical Association, and John M. Dodson, secretary of the Bureau of Health and Public Instruction, will speak at the smoker.

Society News. — Dr. J. Gurney Taylor, Milwaukee, addressed the Chippewa County Medical Society, July 24, on "Nutritional Disturbances in the Breast-Fed Infant."——Dr. William J. Mayo, Rochester, Minn., addressed the Trempealeau-Jackson-Buffalo Medical Society, at Whitehall, August 7, on "Appendicitis," and Drs. Donald C. Balfour and Charles S. McVicar, both of the Mayo Clinic, on "Diseases of the Stomach," from the standpoint of the surgeon and internist, respectively. Dr. Hunter H. McGuire, head of the department of surgery, University of Virginia Medical School, Richmond, spoke on "Gastric and Duodenal Ulcers." Following the meeting, the society took a trip to Lake Pepin on the Mississippi River on Dr. Mayo's yacht, *North Star.*——The Marinette-Florence County Medical Society held its annual picnic, August 26, at Henes Park.

GENERAL

Accidents at Coal Mines.—Reports received by the Bureau of Mines show the loss of 166 lives in coal mine accidents in the United States in July. The fatality rate for the month was 3.45 per million tons of coal mined, which was slightly less than the rate in July of last year; 115 of the fatal accidents were in the bituminous mines of Pennsylvania. The anthracite fatality rate for the first seven months of the year was 6.21 fatalities for every million tons coal mined, while during the same months last year the rate was 5.71. There were nine major mining disasters from January to July; i. e., disasters which caused five or more deaths each. During the corresponding months last year there were only seven major disasters. The aggregate number of lives lost by accidents in coal mines in the first seven months of this year was 1,262, which is 225 less than the number reported in the same period last year.

Postgraduate Work in Vienna.—Dr. Gustav Dinolt of Vienna, Austria, writes that for purposes of organizing regular classes in postgraduate work for American physicians, there has been formed an "American Medical Association of Vienna," and that its address is Vienna IX, Spitalgasse 21, Café Klinik. Dr. Dinolt advises that persons contemplating study in Vienna should write to the secretary of this association for information regarding the courses; he should state the kind of work desired, when he will be present and when to book his course. The classes for 1926 have not yet been fixed. Each course is limited to about eight to ten students; advance information is therefore essential. The courses are nearly all in English, some in German only; they cost from $8.00 to $20.00 per month, according to the number of hours. There are plenty of places where one can live for about $2.00 per day per adult.

Bequests and Donations. — The following bequests and donations have been announced recently:

The Harrisburg Hospital, Harrisburg, Pa., $5,000, and the Chester County Hospital, West Chester, Pa., $2,500, by the will of the late Emily R. Marple; the residue, after several other bequests, to the Harrisburg, Pa., and the Garrettson Hospital, Philadelphia, for free beds.

The Methodist Hospital, Indianapolis, $20,445, by the will of Anna Delzell Hughes.

The Children's Memorial Hospital, Chicago, $100,000, by the will of the late Victor F. Lawson.

Winnipeg Hospital, Winnipeg, Manit., £1,000, by the will of the late Surgeon Lieutenant-Colonel Melladew of the Royal Horse Guards.

The Burlington Hospital, Mercy Hospital and St. Francis Hospital, all of Burlington, Iowa, $5,000 each, by the will of the late E. P. Eastman.

The Roosevelt Hospital, Methodist Hospital, Rush Hospital and the Children's Homeopathic Hospital, Philadelphia, $1,000 each, by the will of the late Charles Lockhart.

The Women's Homeopathic Hospital, Philadelphia, $1,000, by the will of the late Madeline K. Vandergrift.

The Presbyterian Hospital, New York, $5,000 each from Miss Ruth Draper and Robert W. Bliss and wife, and $6,000 for a one-bed room from the Imperial Lodge of Elks.

The White Cross Hospital, Columbus, Ohio, $3,033, by the will of the late Joseph L. Dickey.

The Torrance Hospital Association, Torrance, Calif., $500 each from Dr. Jesse S. Lancaster, Torrance, and John S. Cravens, Pasadena, Calif.

The Jefferson Hospital, Philadelphia, $50,000 for the establishment of a private room and $15,000 for the establishment of three beds, by the will of the late Simon Gratz.

LATIN AMERICA

Tribute to Moreira.—The eighty-fourth anniversary of the organized care of the insane in Brazil was celebrated with a tribute to the director, Prof. Juliano Moreira. A bronze bust was unveiled, and an endowment fund in his name and the foundation of the Moreira prize were announced. The Guinle pavilion, dedicated to treatment of neurosyphilis, was inaugurated by the faculty of medicine as part of the festivities.

Personal.—Drs. Strode and Davis have arrived in Buenos Aires as commissioned by the Rockefeller Foundation to aid in the organized fight against malaria and hookworm. They have been doing similar work in Paraguay and Brazil.——Prof. Pinto de Carvalho was the guest of honor at a banquet tendered by the medical profession of Bahia and other friends recently.——A number of physicians in Brazil recently sent a greeting engraved on parchment to the retiring professor of neurology at Paris, Dr. Pierre Marie, expressing their appreciation of his scientific work.——Dr. Carlos Chagas was recently installed in the newly founded chair of tropical medicine at the University of Rio de Janeiro.

FOREIGN

Esperanto Congress at Geneva.—Dr. Dlassberg, Cracow, was elected president of the medical section of this recent conference, and Professor Vanverts, Lille, was appointed editor-in-chief of the *Esperanto Medical Journal,* which it is planned to enlarge.

Physicians of Ministry of Health.—Whereas in England, in 1914, thirty-four physicians were employed "to safeguard the nation's health" under the old local government board, the ministry of health now employs ninety-two, and the funds estimated necessary for the medical staff of the ministry for the present financial year amount to £182,910 whereas the medical staff of the local government board in 1919 cost only £35,743. The treasury is attempting to reduce the cost of the ministry of health.

Prize for Evidence Extolling Experimental Method in Science.—The Bufalini Prize of 6,000 lire is offered for the best work presented on the subject of the necessity of the experimental method in study of all the sciences—as opposed to a speculative and dogmatic philosophy—with a review of what this method has contributed to special sciences during the twenty years since the last awarding of the prize. The competing articles must be in Italian or Latin, with the name in a sealed envelop, and be received before July 30, 1926, addressed to the Segreteria della R. Universita, Piazza S. Marco, Florence.

Medical Statisticians.—A luncheon was given in August by the British government in honor of the foreign public medical statisticians who were visiting England under the auspices of the League of Nations. Among those present were Sir Humphry Rolleston, Sir Arthur Newsholme and Dr. Thomas H. C. Stevenson, C.B.E; Sir Kingsley Wood presided. The foreign guests included Dr. S. Rosenfield, Austria; Dr. Camille Jacquart, Belgium; Dr. H. J. Hansen, Denmark; Dr. Martti Kovero, Finland; Dr. M. Huber, France; Dr. E. Roesle, Germany; Dr. Cunnar Jahn, Norway; Dr. James C. Dunlop, Scotland; Dr. E. H. N. Arosenius, Sweden; Dr. Marcel Ney, Switzerland; Dr. W. H. Davis, United States; Dr. A. Aguirre-Sayago, Chile; Dr. Martin Kacprzak, Poland; Mr. K. Stouman and Mr. J. Pagnod, League of Nations.

Hospital Needs of England.—A commission directed by the minister of health in April, 1924, to inquire into and report on the amount of additional hospital accommodation required in England and Wales, has presented its report. The commission considers, says the *British Medical Journal,* that about 10,000 additional hospital beds are required in England and Wales and that to provide them there should be a grant by the treasury of £2,000,000, about half the cost of the beds; the other half should be provided from local sources. The commission said little about the future maintenance of the voluntary hospitals. It regards the system of local boards as centers for cooperation in the activities of voluntary hospitals a wise measure but that in the reconstitution of the local boards the direct representatives of the hospitals should not be in a majority. The experience of the commission in administering the recent grant of £500,000 shows that the voluntary hospitals are solvent, with exceptions, and able to raise the funds to maintain 10,000 new beds. They have, however, no reserve for new capital expenditures.

South African Medical Congress.—The twentieth South African Medical Congress was held at Pietermaritzburg, July 6-11, under the presidency of Dr. D. Campbell Watt of that city and with the Natal Island Branch of the British Medical Association acting as hosts. The congress was officially opened by Sir John Dove-Wilson of the Supreme Court with the mayor of Pietermaritzburg in the chair. A new feature of the congress was a popular medical lecture delivered in the town hall by Dr. Shadick Higgins, health officer of Cape Town, on "Public Health in Relation to Social Welfare." Among the subjects discussed in the scientific sections were "The Etiology of Influenza"; "Calcium Therapy"; "Diagnosis and Treatment of High Blood Pressure"; "The Results of a Series of Cases of Suprapubic Prostatectomy"; "Leprosy"; "The Work of the Laboratory in Relation to the Practice of Medicine"; "Bailliart's Instruments Used for the Estimation of the Elasticity of the Small Arteries," and "Cesarean Section for Placenta Praevia." There was golf, tennis, bowling, croquet and boating. In the opinion of the *South African Medical Record,* the congress was a success.

Personal.—Dr. Aldo Castellani, director of tropical medicine and dermatology, Ross Institute, London, has been elected a corresponding member of the Royal Academy of Medicine of Belgium. Recently Dr. Castellani was elected a corresponding member of the Société française de dermatologie.——Sir Ronald Ross formally opened the new building of the British Mosquito Control Institute at Hayling Island, August 31.——The Graefe prize has been awarded this year by the German Ophthalmologic Society to Dr. E. Seidel, chief of the university eye clinic at Heidelberg, for experimental research on glaucoma and the interchanges of fluids in the eye.——Prof. G. Ceccarelli, Perugia, is the recipient this year of the Zannetti prize, given by the Florence Academy of Sciences, for his works on skin grafting.——A gold medal was recently presented by his friends and pupils to Prof. R. Colella, of the chair of nervous and mental diseases at Palermo. He has recently published a compilation of the works that have issued from his service. It is a volume of 1,000 pages.——Dr. J. Goyanes Capdevila, president of the Spanish Anticancer League, has been commissioned by the government to visit the cancer institutes of France, Belgium, Germany, the Netherlands, Denmark, Sweden and Norway.——Dr. Bailey is the representative of the Rockefeller Foundation in the international party of internists sent to Spain by the health board of the League of Nations to study ways and means to combat malaria in that country. They were particularly interested in the endemic malaria encountered at the comparatively high altitude of the Escorial district.——Our European exchanges mention the arrival at different points and the festivities greeting the large party of Spanish physicians now making a tour of the medical centers of western continental Europe.

Deaths in Other Countries

Dr. Walter Carless Swayne, professor of obstetrics in the University of Bristol, was shot and killed, August 8, at Sellack, aged 63.

Government Services

Army Personals

Major John E. Walker has been ordered from Hot Springs, Ark., to Walter Reed General Hospital, Washington, D. C., for duty.——Major William A. Foertmeyer, Letterman General Hospital, Presidio of San Francisco, has been directed to report to the Army Retiring Board for examination.——Captain Charles W. Henderson, Letterman General Hospital, San Francisco, will proceed to Camp Stephen D. Little, Nogales, Ariz., for duty about September 1.——Major Edgar A. Bocock has been directed to proceed from the Walter Reed General Hospital, Washington, D. C., to Camp Holabird, Md., for duty, November 1; Major Jirah M. Downs from the Letterman General Hospital, San Francisco, to Nogales, Ariz., for duty, September 1; and Capt. John F. Lieberman from the Walter Reed General Hospital to Fort Bragg, N. C., September 15, for duty.——Col. Alexander N. Stark, Medical Corps, has been retired from active service on account of disability incident thereto.——On completion of foreign service in the Panama Canal department, Major Albert G. Franklin will be assigned to duty at Fort Sam Houston, Texas; Capts. James R. Bibighaus to the Presidio of Monterey, Calif.; William T. Fisher to Camp Devens, Mass., and William S. Crawford to Walter Reed General Hospital, Washington, D. C.——The following officers will sail from New York, Jan. 21, 1926, for duty in the Canal Zone: Major Elvin H. Burger, Fort Sam Houston, Texas; Capts. Ross B. Bretz, Washington; Wilmer C. Dreibelbies, Fort Leavenworth, Kan., and Brooke Dodson, Fort Niagara, N. Y.

Veterans' Bureau Personals

Dr. Charles M. Griffith, chief, Hospital Section General Medical and Surgical Division, at the central office of the Veterans' Bureau, Washington, D. C., and Dr. Leon M. Wilbor, chief, Hospital Section Neuropsychiatric Division, have been assigned to "field duty" as medical supervisors for a period of two to three months.——Dr. Walter D. Martin of the Inspection Division of the central office of the Veterans' Bureau, resigned July 1.——Dr. Hugh L. Robinson, on duty at Hospital No. 44, West Roxbury, Mass., resigned, June 15.——Dr. Ralph E. Runkle, on duty at Hospital No. 80, Fort Lyon, Colo., resigned, July 8.——Dr. George B. Story, on duty at Hospital No. 99, Excelsior Springs, Mo., resigned, August 7.——Dr. Howard T. Child, on duty at Hospital No. 95, Northampton, Mass., resigned, July 20.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Aug. 29, 1925.

The British Social Hygiene Council

The first annual meeting of the British Social Hygiene Council has been held. The council, under its new name, replaces, after eleven years of valuable work, the National Council for Combating Venereal Diseases. An important extension of the work will take place without any relaxation of the past work in respect of public enlightenment on the problems of venereal disease and facilities for their free treatment. During these eleven years it has been a main part of the work of the national council to promote the policy and the work of the ministry of health and of public health authorities in securing diagnosis and treatment for all patients, as a means for diminishing infection and avoiding consequences associated with these diseases. The wide distribution of information concerning these diseases which it has been able to furnish has been an important factor in the medical success that has been achieved. The success is shown by the fact that during the last four years the number of new cases of syphilis at the treatment centers has declined by nearly 50 per cent. Great progress has been made since the formation of the purely voluntary organization of the National Council for Combating Venereal Diseases in 1914. Today the organization of the British Social Hygiene Council spreads to all corners of the empire. It is recognized by and cooperates with government departments—the ministry of health, the colonial office, the admiralty, and the air ministry —in providing material for popular enlightenment and in cooperation in all measures calculated to reduce the ravages of venereal disease, receiving grants for certain specific activities. At home, active cooperation exists between almost all the local authorities in the country and the council; and out of the 154 areas the council has recognized branches in eighty-five, creating centers for the formation of public opinion and for building up protective and preventive machinery in the interests of youth. Councils have been established in Canada, South Africa, Australia and six of the crown colonies, and a close liaison exists between the council and colonial health departments throughout the empire.

The British Social Hygiene Council is now extending its attack on venereal disease on social as well as medical lines, and is working for the reduction of promiscuity. To insure success, increased prominence is being given to the elimination of those conditions of life which tend to foster promiscuous intercourse and the spread of disease. With the object of preventing infection, the British Social Hygiene Council is extending its work to include the fostering of character training of the young. It advocates basing habit formation on a knowledge of the facts of life and on the attainment of right conduct through consciousness of social and racial responsibility. The council also is working for the eradication of all known forms of commercialized vice and the promotion of adequate facilities for recreation and diversion.

The Bureau of Entomology

The report of the second imperial entomologic conference held recently in London has been issued. It recommends that in suitable circumstances interdominion and intercolonial meetings of entomologists, mycologists and other scientific officers should be arranged. It is already in contemplation to invite the governments of South, Central and Eastern Africa to send their expert officers to some convenient central point in order to discuss methods of control of cotton pests. The bureau may be described as a clearing house, through which may be made known to all those engaged on entomology the results of work which is being carried out in other parts of the world, and, further, as a central institution to which entomologists may send insects for identification, and to which they can look for advice and assistance in dealing with their problems. If, as is possible, the time has now come when financial conditions will permit of a comprehensive attack on the tsetse fly, the bureau will be glad to give any assistance in its power and to lay at the disposal of the authorities the knowledge already gained in experimental work in Tanganyika Territory, Nigeria and Uganda.

Antisuicide Bureau

Brigadier Chapman, who has been associated with the antisuicide bureau of the Salvation Army since its inception in 1908, has just relinquished the position. So useful has been the work that there is now a standing order in each metropolitan police station empowering the officer in charge to hand over certain classes of would-be suicides to the Salvation Army, thus obviating police court proceedings. The idea of General Booth, when he founded the bureau, was that no man would commit suicide so long as he thought he had one friend in the world to stand by him. The bureau was intended to be a friend of the hopeless, and it has been helpful to thousands of distraught men and women. All sorts and conditions of people come within the purview of the bureau. How the bureau works may be gained from the following instances: A city merchant, worried about his financial affairs, which had become involved, attempted suicide on the railway, and got into the hands of the police. The magistrate before whom he appeared did not want to send him to prison, and communicated with the Salvation Army. At first the man refused to have anything to do with it, but ultimately consented to place himself unreservedly in its hands. Brigadier Chapman was given power of attorney, and when the man retired into the country to recuperate, his business was carried on in his absence. On his return he found that his financial position was perfectly secure

Improved Financial Position of the London Hospitals

A statistical report for the year 1924 on 118 London hospitals issued by the King Edward's Hospital Fund for London shows: (*a*) A continued increase in the work of the London hospitals, the total available beds being 13,460 in 1924, an increase of 350 over 1923 and 1,620 over 1913. This is especially interesting in view of the report recently issued by the Voluntary Hospitals Commission on the question of extension. (*b*) A continued increase in maintenance expenditure, the total being $13,780,000 in 1924, as against $13,165,000 in 1923 and $6,020,000 in 1913. (*c*) A continued increase in income, which was $14,590,000 in 1924, as against $14,300,000 in 1923 and $7,425,000 in 1913. (*d*) A remarkable improvement in the financial position since the crisis in 1920, whereby the net aggregate deficits (taking all the hospitals together) for the years 1920, 1921 and 1922 have been gradually changed into net aggregate surpluses for 1923 and 1924, and the number of hospitals with deficits has decreased from seventy-seven in 1920 to fifty-four in 1924. (*e*) In addition to the increase in income, very large sums received for capital purposes during the last three years; viz., for endowment $3,225,000 and for buildings and equipment $4,050,000. Among other points of interest is the proportion of expenditure covered by each kind of income: 20.1 per cent. by income from investments, amounting to $2,770,000; 37.7 per cent. by voluntary gifts, amounting to $5,195,000; 29.8 per cent. by patients' payments and other earnings, amounting to $4,100,000, and

18.3 per cent., or $2,525,000, by legacies and other extraordinary income; the surplus of income over expenditure being 5.9.

British Ophthalmologists' and "Opticians'" Claims to Prescribe Spectacles

In connection with ophthalmic benefit under the national health insurance act the royal commission is holding an inquiry. The council of British ophthalmologists strongly opposes the qualified opticians' claim to prescribe spectacles, holding that the examination of the eyes should be carried out by qualified physicians. It approves and supports the recommendations in this respect recently formulated by its subcommittee in conjunction with representatives of the British Medical Association. Asked by the chairman of the commission whether the general practitioner would be acting improperly in advising a patient to go direct to an optician, Mr. Collins, giving evidence on behalf of the ophthalmologists, said that that must be left in a large measure to the general practitioner himself. If he accepted the responsibility of stating that the case was one which required only the care of an optician, he would be taking on himself a very large responsibility. An optician might in some cases be capable of ascertaining the figures representing an optical defect, but the determining of the glasses that should be worn was quite another matter, and one that required medical as distinct from optical training. Asked whether he considered that there were sufficient medical practitioners versed in ophthalmic work to meet the requirements should this benefit be extended to the whole insured population, Mr. Collins said that his council had associated itself with the British Medical Association and the Ophthalmic Benefit Committee in this matter. The British Medical Association had drawn up a list of some 500 ophthalmologists prepared to see insured persons at a uniform fee of $5 on behalf of approved societies. The supply would also tend to increase with the demand. Asked what evidence there was of real danger that had arisen in consequence of the very common practice of going straight to an optician, Mr. Collins replied that his council had plenty of evidence which could be divided under three heads: overlooked disease, patients unnecessarily alarmed about their condition, and unnecessary glasses supplied.

Irish Physicians and the British Medical Register

The difficulty that has arisen in consequence of the Irish Free State deciding to establish a medical register of its own has been described in a previous letter (The Journal, September 5, p. 759). Mr. Cosgrave, president of the Free State executive council, in a speech defending this policy said that in 1858 the British medical council was constituted and at the same time branch councils were set up for England, Scotland and Ireland. The work of medical registration was carried out by these branch councils subject to general control by the British medical council. The medical council set up in 1858 was a United Kingdom body constituted on the basis of the unity of Great Britain and Ireland. That unity was dissolved on the setting up of the Free State as a self-governing dominion. The system of medical registration in existence then became no longer applicable to Ireland. It was impossible to exaggerate the importance of the medical profession to a country. Consequently it was incumbent on the government to control the profession within its borders. With regard to the ill effects feared from the government's proposal, he pointed out that the medical register at present had a colonial list of physicians with the same rights of practicing and entering the imperial services as physicians on the British medical register. He could see no force in the argument that Irish physicians in future could not practice in England.

The only medical support received for the government's proposals comes from the medical faculty of University College, Galway, which has issued a statement that "the time has come when an Irish nation must control its own affairs, and this applies to medicine as to other matters. The hardships which will accrue to Irish graduates have been unduly stressed." At a special meeting of the Royal College of Surgeons in Ireland a resolution was passed unanimously approving of the conduct of the president, Mr. R. C. B. Maunsell, in opposing the proposal to establish a separate medical register. But the council decided that, as the medical profession never interfered in politics, it would combat the government's proposal by the education of public opinion alone, and would undertake no political campaign.

In a letter to the president of the college, Mr. Gogarty, a throat specialist and member of the Irish senate declares: "The effort to get rid of the general medical council arises from the same idea which instigates the spending of immense wealth in forcing both children and teachers in the infant schools, when all our rivals in the English market are learning English, to use a new-fangled form of Gaelic, incomprehensible to native speakers, as the only form of education. The intention is to turn the Galway College into a Gaelic-speaking licensing body. Evidently before this can be accomplished it is necessary to become separate from the British medical council, which has a high and international standard. At the present moment the worst physiques and sanitation are to be found in the Gaelic-speaking districts."

PARIS

(From Our Regular Correspondent)

Aug. 21, 1925.

Treatment of Tuberculosis with the G. Dreyer Antigen

In May, 1923, G. Dreyer announced in a somewhat startling article that with the aid of a defatted tuberculous antigen he had been able to arrest in guinea-pigs the evolution of tuberculosis. It was with some surprise that the medical public learned, on reading the details of the announcement, that Dreyer's observations were confined to four guinea-pigs, which was a rather modest showing in view of the results claimed. In an attempt to confirm Dreyer's results, E. Grasset carried out experiments on a large number of animals in the laboratory of Professor Calmette at the Pasteur Institute. As is well known, the Dreyer antigen is obtained by treating with solution of formaldehyd tubercle bacilli, which are afterward defatted by acetone. After this treatment, the bacilli are no longer acid-resistant, and when emulsified in a 0.9 per cent. solution of sodium chlorid are injected under the skin of tuberculous guinea-pigs.

According to Dreyer's account of his experiments, the emulsions of bacilli thus defatted and treated with formaldehyd produced no abscesses at the site of the injection, nor did the animals treated succumb to the tuberculous infection. From the beginning of his researches, Grasset found that not only was it inaccurate to speak of "absence of local reaction"; for a puffy condition of the tissues at the point of injection developed, but also adenopathies appeared, which were more marked near the site of the injections of antigen. The remote results were likewise negative. The treated animals all died after the lapse of the same periods as the controls; they even became more rapidly emaciated than the controls.

Angina Pectoris

At the eighteenth French Congress of Medicine, the subject of angina pectoris was presented in two excellent papers by Gallavardin and by Richon. Gallavardin first discussed the present hypotheses, which ascribe an important rôle to the cervical region of the spinal cord. He then took up the types of angina pectoris of grave import. Among these he distinguished *angor d'effort*, of which he cited 486 cases; *angor de repos*, which is more rare, and, finally, angor in the various cardiac or mediastinal affections. Passing in review the types of angina pectoris of uncertain import, the author pointed out their variety and the frequently unfrank character of the paroxysm. He emphasized also the difficulty of the diagnosis and the prognosis.

In studying the benign types of angina pectoris, it became evident that he was a follower of Laubry, who ascribes them to the hyperexcitability of the cardiac nervous system, whereas organic angor results from a hyperexcitation. The cause that is responsible for this hypersensibility lies sometimes in a distant part of the organism (liver, testis, amputation stump, gastric distention).

Discussing the pathogenesis of angina pectoris, Gallavardin pointed out that, while it is true that there are numerous cases in which at necropsy no obliteration or contraction of the coronary arteries has been found, it is nevertheless true that in twenty necropsies of genuine cases of angina pectoris he found an obliteration of the coronary arteries in ten instances.

Richon gave a brilliant discussion of the present status of surgical treatment of angina pectoris. He recalled that François Franck was the first to propose the resection of the cervical portion of the sympathetic trunk, and enumerated the various possible interventions: operations on the spinal nerves beyond the rami, which have not given good results; operations on the depressor nerve and on the trunk of the vagus nerve, and operations on the sympathetic system (more or less extended resection of the cervical portion of the sympathetic trunk).

Richon, in closing, spoke more encouragingly of these operations, saying that they would yield better and more permanent results when with wider experience the technic had been worked out more precisely.

The Epidemiology of Cancer

In two noteworthy articles, L. Negre has taken up again the question of cancerous regions and cancer dwellings. After making investigations at Labastide in the Tarn region, where cancer is very frequent, causing 15 per cent. of the deaths, he points out that in that town cancer appears to have been especially frequent in certain sections. But the sections that have, in the past, been most affected have, for a number of years, been unusually free from cancer. The endemia seems to have shifted, and Negre noted similar conditions with respect to so-called "cancer houses." He states that these observations are difficult to explain if we accept the parasitic origin of the affection.

On investigating the houses of Labastide in which as yet not a single case of cancer has occurred, the author found that, for the most part, these were houses of recent construction. On the contrary, the houses in which cases of cancer have been numerous are among the oldest in town. In many instances the back of the house is near a high hill, with the result that the lower floor is particularly damp. Rats are numerous and Negre raises the question whether the rat might not carry an infective agent such as *Gongylonema*, a nematode parasite, which would produce carcinoma of the stomach in the rat. While not ready to accept the conclusions of Dr. Sambon, who holds that the aforementioned parasite plays a part in the genesis of cancer in man, the author has studied various statistics and points out the extraordinary frequency of cancer of the digestive tract. It is well known that *Gongylonema* passes its larval stage not only in the cockroach but also in certain parasites found in flour (Fénébrionides and Scarabéides). Negre studied the distribution of cancer near bakeries and found (1) a large number of cancer cases in the vicinity of bakeries, and (2) frequency of cancer in bakers and in bakers' families, and, as a curious fact, a high frequency of cancer of the digestive tract. While Negre would not draw from the results of his investigations any exaggerated conclusions, he wishes that more extensive researches might be made in this direction, as they might throw new light on the controversial question of the epidemiology of cancer.

Fixation Reaction in Chancroidal Infection

Pierre Teissier, J. Reilly and Rivalier presented at the eighteenth French Congress of Medicine the results of their researches on the existence of an amboceptor in the blood serum of chancroid patients. As antigen they used endotoxin extracted from Ducrey bacilli. The authors showed that, in 94 per cent. of the cases, a deviation of complement was secured which appeared the eighth day and may persist three years after recovery. They observed increase of the antibodies on injecting into the patients killed micro-organisms, whereas the injection of the same organisms in healthy persons did not cause the formation of antibodies. The deviation of complement appears to be an entirely specific reaction and is not wanting except in subjects that do not present the usual inguinal adenopathy.

VIENNA

(From Our Regular Correspondent)

Aug. 14, 1925.

Report of the Institute for the Prophylactic Treatment of Rabies, 1913-1923

Vienna has its own institute for treatment of persons bitten by animals, in whom rabies may develop. The institute is under state supervision and is connected with the Rudolf Hospital. A recent report covering the eleven year period from 1913 to 1923 distinguishes between the prewar period, the period of the war, and the postbellum period, since the territory from which it drew patients has varied under changing conditions. In 1913 and 1914, 1,434 persons were inoculated; however, sixty-six of these can be eliminated because they did not complete the treatment or because the animal that did the biting proved not to have rabies. Of the 1,368 remaining, 64 per cent. were men and 36 per cent., women; or, with respect to age, 62 per cent. were adults and 38 per cent., children. In 32 per cent. of the cases, a week elapsed before treatment was begun. In 94 per cent., the animals that did the biting were dogs, of which 88 per cent. had rabies. Five per cent. of the animals concerned were cats. In nine instances, horses, in two cases, cattle and in five cases, human beings did the biting. Of the persons inoculated, sixteen died—six succumbing during inoculation or within fourteen days after the conclusion of treatment. The shortest period of incubation was sixteen days; the longest, twenty-six days. Severe head and face injuries predominated. In the ten other fatal cases, the patients developed the infection between the thirty-second and the one hundred and twenty-seventh day after the injury. Among these were four bite injuries that were slight. During the same period, six persons that were not inoculated died from rabies. Of the sixteen inoculated patients who died, ten were children, or 62 per cent., whereas only 38 per cent. of the persons bitten were children. In general, children succumb more readily to rabies than adults; for example, the mortality for adults bitten about the head was 1.92 per cent., while the mortality of children was ten times as high; namely, 19.45 per cent.

During the war years (1915, 1916, 1917 and 1918), 5,153 persons were inoculated in the institute, but only 4,850 cases are utilizable for statistical purposes. During this period, there seems to have been a certain laxness in examination by veterinarians of the biting animals; then, too, many patients came from regions in which veterinary sanitation and examinations were of doubtful efficacy. Therefore, the mortality statistics of patients who returned home are not reliable. There were 63 per cent. men and 37 per cent. women; among these, 33 per cent. children. Nine hundred and eighty-nine patients did not receive treatment until more than a week had elapsed after injury. The patients came mainly from the following countries: Bessarabia, five cases; Russian Poland, ninety-nine; Ukraine, three; Roumania, sixteen; Serbia, four; Bulgaria, seven; Albania, fifteen; Croatia, twelve; Bosnia, fourteen; northern Italy, 166—from war-stricken areas, it will be seen, in which the hygienic arrangements were, for the most part, very defective. The biting animals were: 92.75 per cent. dogs, 6.5 per cent. cats; in addition, six horses, sixteen bovines, one pig, one fox, one ass, one ape. In fourteen cases human beings did the biting. In 33 per cent. of the cases it was not absolutely certain that the animals were actually suffering from rabies, but it was probable. Of those inoculated, sixty-one died from rabies; thirteen of these during treatment or, at the most, within fourteen days after completion of treatment. The shortest period of incubation was fifteen days; the longest, thirty-two days. Of the thirteen cases, seven were severe head-and-face bites, five severe hand bites, and one mild foot bite. Five of those who died were bitten by dogs that were supposed to be affected with rabies, though the infection had not been demonstrated by laboratory experiments. The remaining forty-eight patients who died gave evidence of the infection after an incubation period of from thirty-five to 169 days. In six cases, incubation extended over a period of 100 days or more (four hand wounds, and one arm and one foot wound), all of them severe cases. During this period, three patients died from postvaccinal paralysis, one from sepsis of the bite wound, and one from pneumonia. In these five cases, neither the clinical course nor the necropsy could justify the diagnosis "rabies." During the period, twenty-six who were bitten and were not inoculated died from rabies. The mortality of children was high here as well, particularly in case of head wounds. Of 168 children of this class, sixteen, or 9.5 per cent., died, whereas of 141 adults with head wounds, only five, or 3.5 per cent., died.

In the years following the war (1919-1921) the number of persons applying for assistance has decreased, partly owing to the dismemberment of the empire. In these three years, only 1,217 persons have visited the institution, only 1,119 of whom could be considered for the purposes of statistics. The men constituted 60.5 per cent.; women, 39.5 per cent.; 34 per cent. of the patients being children. Thirteen per cent. of the patients presented themselves too late for inoculation. The biting animals were: dogs, 92 per cent.; cats, 5 per cent.; in addition, ten horses, eight bovines, six pigs, one goat, one rabbit and six human beings are incriminated in the register. In 79 per cent. of all cases rabies was demonstrated in the animals, including the goat and rabbit. Fourteen persons died, in spite of inoculation, during this period; seven of whom died during treatment (incubation from fifteen to twenty-seven days), without exception, all severe head and face wounds. The remaining seven patients developed infection and died a long time after injury, the incubation time ranging from forty-three to 278 days. During this period, eleven persons who were not inoculated died from rabies. In all the statistics the high mortality of head wounds may be noted, which in some years reached 27 per cent. This proves that methods need to be further improved. The Pasteur method brings about immunity of the organism only when fourteen days have elapsed after inoculation, and patients with a short incubation period cannot be saved by inoculation. Better methods, are, therefore, being sought.

In December, 1921, Professor Paltauf, after comprehensive experiments on animals, introduced in the Vienna institute the "ether method" (recommended by Alivisatos and by Remlinger) in combination with the Pasteur and Högyes procedure, and since then that method has been employed in all severe wounds. During 1922 and 1923, improvement in the results of inoculation was apparent. Although rabies, during this two-year period, has shown an increase in Austria and the number of persons inoculated has been correspondingly greater, the fatal cases have been fewer. More than 12 per cent. were tardy in seeking treatment. The biting animals were: dogs, 90 per cent.; cats, 7 per cent.; in addition, fifteen bovines, seven horses, six pigs, one fox, and three human beings were incriminated. Three patients (two children and an adult) died, after an incubation period of from thirty-three to fifty-two days. Furthermore, five inoculated persons died from postvaccinal paralysis, rabies not having been demonstrated, and nine bitten but not inoculated died from rabies. The new method thus gives much more favorable results than the old Pasteur method. Whereas up to and including 1921, the yearly mortality of all persons inoculated fluctuated around 1.2 per cent., the corresponding mortality for 1922 and 1923 dropped to 0.19 per cent., or less than one sixth of the former rate, though the character of the bites and the severity of the injuries average much the same each year. During the eleven years covered by the report, the head wounds ranged from 5 to 7 per cent. of the total, the hand wounds from 44 to 53 per cent., the arm wounds from 10 to 14 per cent., wounds of the lower extremities from 25 to 32 per cent., and wounds of the trunk from 1 to 4 per cent. During the last two years, a number of exceedingly severe head wounds have been observed, which, judging from previous experience, would have yielded a number of deaths from rabies, but not one of these cases has resulted fatally. In the three patients who died from a hand, a foot and a head wound, respectively, the new method was just beginning to be used and experimental trials were being made with ether injections. The deaths from myelitis occurred in cases in which ether injections were not employed. The increase of such complications was beginning to attract attention, but since September, 1923, when the old Pasteur method was abandoned and the Högyes method instituted, these complications have disappeared. Dr. J. Schweinburg, the author of the cited report, promises a further communication on myelitis, which will doubtless be instructive.

Birthday Honors for Two Professors

Two esteemed professors of the University of Vienna have reached important stages in their careers; Prof. Dr. S. Klein, the Nestor of Vienna ophthalmologists, attained the age of 80 and Professor Ortner reached the age of 60. Klein was an assistant of the pioneer of ophthalmology, Professor von Jaeger, and learned from him the use of the ophthalmoscope; particularly the method of examination by the direct method. He has published several textbooks on ophthalmology, including a work on examinations of the fundus oculi in mental cases. He has also collaborated in the publication of collective works, such as Nothnagel's Handbook and Eulenburg's "Realencyclopädie der Gesammten Augenheilkunde." His didactive ability and great skill as an operator attracted many pupils to the Vienna policlinic. He emphasized the importance of balneology in the treatment of diseases of the eye.

Professor Ortner is the head of the second clinic for internal diseases in Vienna. As the assistant and pupil of Neusser, he became well known as early as 1894 through his researches on infections of the bile ducts and on pericarditis in peritonitis. In 1907 he was called to Innsbruck as director of the clinic, but in 1911 he returned to Vienna, where he became director of the clinic of internal diseases, in which he is still active. His "Diagnosis of Internal Diseases" and his "Symptomatology" are outstanding textbooks, which have been translated into all civilized languages. The older he becomes, the more fruitful and the more intense are his activities. The completion of his sixtieth year was made the occasion of a great celebration.

BERLIN

(*From Our Regular Correspondent*)

Aug. 22, 1925.

Results of the Recent Census of Germany

According to preliminary reports of the census taken June 16, Germany has now a population of 62,500,000. The war and the subsequent cessions of territory as stipulated by the Versailles treaty had reduced the population from 67,900,000 in 1915 to 59,200,000 in 1919. The latter figure does not include the 400,000 war veterans who had not yet returned to their homes. The increase in population since 1919 of nearly three millions is due to various causes, chief among which is the excess of births over deaths—0.85 per cent. This would constitute an increase of about 2,500,000. However, the excess of births over deaths is not due to an increase in the birth rate. As a consequence of the exceedingly high birth rates that prevailed in the ninth and tenth decades of the last century, the number of persons belonging to the 20 to 40 age group is very high, comparatively, and consequently the mortality rate is much below normal.

The further increase of about 400,000 may be explained by reemigration from the colonies and the ceded territories. Corresponding to this increase in population, the density of the population has increased. There are now 132.9 persons to the square kilometer; in 1910, the density was only 122.9.

With reference to sex incidence, not only has the growing preponderance of females been checked but the males have begun to regain their rightful proportion. In 1910, there were 1,029 female inhabitants to each 1,000 males, and in 1919, as a consequence of the war, the female portion of the population had so gained the upper hand that there were 1,101 females to 1,000 males. The census shows that there are now only 1,074 females to 1,000 males. This gain of the male portion of the population is due in the main to the preponderance of male births in recent years, but it will probably be some time before the gaps that were caused by the death of two million men in the prime of life will have been closed.

As regards geographic distribution of the population, the number of "chief cities" (more than 100,000 population) has increased by three. Two of these are commercial and manufacturing cities (Oberhausen and Ludwigshafen), and their increase in population during the last fifteen years is due to the growth of the large industries. The third new "chief city" is Wiesbaden, which, as a result of the war and the occupation by foreign troops at the time of the 1919 census, had lost this distinction. Nearly all the chief cities show a gain over 1919, and all but seven have gone beyond the population of 1910. Kiel is an exception, as its present status is about 9 per cent. below the prewar population; it is the only "chief city" that shows a falling off since 1919. As for the share that the various states or provinces have had in the increase in population, the largest share falls to Prussia (it being by far the largest state) which shows an increase of 3,140,000 since 1910, although the highest percentage of increase was recorded by Oldenburg (14.1). The smallest increase was registered by Schaumburg-Lippe (2.1 per cent.). The average increase in population for Germany as a whole —as compared with the last census—is 8.1 per cent.

However, the published figures are those of a preliminary report, which will be subjected to a thorough revision.

The Dangers with Respect to Pregnancy and Childbirth for Women Employed Industrially

In an address before the Berliner medizinische Gesellschaft on the subject of the disadvantages with regard to pregnancy, birth and childbed resulting for women employed industrially, Dr. M. Hirsch, gynecologist and editor of the *Archiv für Frauenkunde und Eugenik*, recently presented the following data:

Until it will be possible to free all pregnant women (married or unmarried) from the disadvantages of industrial work, the following minimal requirements should be recognized and adopted: (1) prohibition of industrial work, on the part of pregnant women, for the last three months of pregnancy; (2) limitation of industrial work by pregnant women in the fifth and sixth months of pregnancy to four hours a day at the most, and in the third and fourth months of pregnancy to six hours a day, with two hours' rest at noon; (3) remuneration, for the loss of wages, from state funds or from some form of obligatory mutual insurance. As prophylactic measures for pregnant women the following suggestions were made: (1) provision of seats in connection with forms of work that require an uninterrupted standing posture or constant walking about; (2) provision of a pleasantly furnished rest room in large industrial plants where women, not only during the rest periods but also in case of weakness or temporary incapacity, may have an opportunity to lie down on a comfortable couch; (3) provision of medicaments that medical experience has shown to be beneficial in pregnancy; (4) provision of canteens for supplying extra provisions, delicacies, beverages and other articles that meet the special needs of pregnant women; (5) employment of factory physicians; (6) establishment of medical consultation hours for pregnant women in large industrial plants; (7) employment of women physicians as industrial superintendents, with the obligation of devoting special attention to pregnant women and making a special study of the effects of industrial work on the body and the mental and psychic life of women during the period of pregnancy; (8) obligation of the women superintendents to give special time and attention to pregnant women in connection with the labor processes; (9) creation of medical consultation centers for pregnant women in the communes; (10) absolute recognition of pregnancy discomforts as sickness within the meaning of the federal health insurance system as exemplified by the *Krankenkassen*, or health insurance societies; (11) obligation of *Krankenkassen* to assume the expense of medical treatment and the furnishing of medicaments to the families of insured married persons, and (12) assumption by the *Krankenkassen* of the hospital expense of a normal as well as a difficult confinement, with a proper per diem allowance.

Marriages

Russell M. Kurten, Racine, Wis., to Miss Gertrude Salisbury of Rosendale, at Madison, May 25.

John Lawrence Keane, Cascade, Iowa, to Miss Inez Catharine Krapfi of Dyersville, August 18.

Geraldine M. Hamilton, Battle Creek, Mich., to Mr. Lionel G. Crocker of Ann Arbor, August 15.

Richard Leslie Bower, Madison, Wis., to Miss Alice Louise Gall of St. Paul, Minn., June 27.

Henry G. Plaster to Miss Jerusha Steele Lohman, both of Washington, D. C.. April 30.

Hall H. Ratcliffe to Miss Mary Louise Richardson, both of Natchez, Miss., June 11.

Stell R. Lehr, Berkeley, Calif., to Mr. Max M. Zimmerer of Hollywood, August 5.

Mary Evans Brown to Mr. Ernest B. Graham, both of Zanesville, Ohio, July 23.

Ezra Eugene Neff, Madison, Wis., to Miss Ruth Perry of Beverly, Mass., June 2.

Don G. Lew to Miss Helen Wai-sih Yuan, both of Tsingtao, China, May 10.

Deaths

John Daniel Pifer, Morgantown, W. Va.; Medical College of Ohio, Cincinnati, 1887; Bellevue Hospital Medical College, New York, 1888; member of the Missouri State Medical Association, and the American Academy of Ophthalmology and Oto-Laryngology; formerly on the staff of St. Mary's Hospital, Joplin, Mo.; aged 62; died, August 25, of arteriosclerosis.

Patton Kimbrough Pierce, Eutaw, Ala.; University of Virginia Department of Medicine, Charlottesville, 1921; member of the Medical Association of the State of Alabama, and the Medical Society of Virginia; aged 30; died, August 18, at a hospital in Harrisburg, Va., of injuries received, when the automobile in which he was driving overturned.

John A. Grier, Sistersville, W. Va.; College of Physicians and Surgeons, Baltimore, 1894; member of the West Virginia State Medical Association; member and past president of the board of education; formerly city health officer; aged 55; died, August 27, at the Ohio Valley General Hospital, Wheeling, following an appendectomy.

Joseph W. Fowler, Louisville, Ky.; Louisville Medical College, 1890; member of the Kentucky State Medical Association; formerly superintendent of the Louisville City Hospital; past president of the Louisville Board of Pharmacy and the Louisville College of Pharmacy; aged 72; died, August 23.

Francis C. Ford, Nacogdoches, Texas; University of Alabama School of Medicine, Tuscaloosa, 1873; Medical Department University of Louisiana, New Orleans, 1880; Spanish-American War veteran; aged 75; died, August 23, of heart disease.

George J. C. Wintermute, Phoenix, Ariz.; Cincinnati College of Medicine and Surgery, 1875; Civil War veteran; formerly member of the state legislature; past president of the Ohio State Board of Pharmacy; aged 84; died, August 24.

Edwin W. Garberich, Spokane, Wash.; University of Pennsylvania School of Medicine, Philadelphia, 1865; Civil War veteran; formerly druggist; aged 83; died, August 14, at the Washington Veterans' Home and Hospital, Retsil.

Raymond Regan Harrington ⊕ Chicago; Northwestern University Medical School, Chicago, 1912; member of the Chicago Ophthalmological Society; aged 35; died, August 5, of chronic nephritis and edema of the lungs.

Albin Victor Ohlson, Kane, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1922; member of the Medical Society of the State of Pennsylvania; aged 29; died, August 22, of cardiac thrombosis.

Edgar Joy Gibson, Fort Atkinson, Wis.; Hahnemann Medical College and Hospital, Chicago, 1880; for twenty-six years health officer of Fort Atkinson; aged 70; died, August 14, following a long illness.

Jesse M. Burford, Independence, Tex.; Medical Department of the Tulane University of Louisiana, New Orleans, 1887; member of the State Medical Association of Texas; aged 64; died, August 23.

John P. Salb, Jasper, Ind.; Medical College of Indiana, Indianapolis, 1880; member and past president of the Indiana State Medical Association; formerly bank president; aged 70; died, August 22.

Charles Pomeroy Graves, Canon City, Colo.; Cleveland University of Medicine and Surgery, 1862; University of Buffalo (N. Y.) Department of Medicine, 1876; aged 94; died, in August.

Linwood D. Batkins, Richmond, Va.; Medical College of Virginia, Richmond, 1894; member of the Medical Society of Virginia; aged 51; died, August 25, at St. Elizabeth's Hospital.

Benjamin Barrington Jameson, Columbus, Ga.; Atlanta Medical College, 1887; member of the Medical Association of Georgia; aged 67; died, August 25, following a long illness.

George M. Tyrrell, Freeport, Ill.; College of Physicians and Surgeons, Keokuk, 1888; member of the Illinois State Medical Society; aged 63; died, August 26, of heart disease.

Burton Otis Young ⊕ Texhoma, Okla.; Lincoln (Neb.) Medical College, 1902; aged 49; died, August 6, at the Epworth Hospital, Liberal, Kan., of gangrenous appendicitis.

Cassidy Chenoweth ⊕ Decatur, Ill.; Rush Medical College, Chicago, 1869; aged 77; died, August 22, at the Decatur and Macon County Hospital, of carcinoma of the throat.

John H. Bowman, Vickery, Ohio; Columbus Medical College, 1890; member of the Ohio State Medical Association; aged 66; died, August 14, of cerebral hemorrhage.

Charles F. Ballard ⊕ Havelock, Neb.; Medical College of Indiana, Indianapolis, 1879; formerly member of the board of education; aged 59; died suddenly, August 17.

Andrew J. Gibson, Duluth, Minn.; University of Edinburgh, Scotland, 1894; member of the Minnesota State Medical Association; died, August 18, at Creetown, Scotland.

James Allan McMurray ⊕ Marion, Ohio; Western Reserve University School of Medicine, Cleveland, 1888; aged 61; died, August 25, of cerebral hemorrhage.

Welton C. Williams, Vienna, Va.; George Washington University Medical School, Washington, D. C., 1899; aged 52; died, August 23, following a long illness.

Charles W. Driesbach, Opportunity, Wash.; Western Reserve University School of Medicine, Cleveland, 1889; aged 58; died, August 20, at Addie, Idaho.

John Denton, Leicester, N. Y.; Bellevue Hospital Medical College, New York, 1879; aged 73; died, August 14, of cerebral hemorrhage and heart disease.

Loddie Whitney Williams, Winchester, Tenn.; Medical Department University of Nashville, 1890; aged 64; died, August 17, following a long illness.

Joseph Grant O'Brien, Jr. ⊕ Butte, Mont.; Johns Hopkins University Medical Department, Baltimore, 1919; aged 31; died, August 21, of carcinoma.

Henry Milton Chapman ⊕ Bangor, Maine; Medical Department of the University of the City of New York, 1895; aged 54; died, in August.

Hugh P. Gilkeson, Warrensburg, Mo.; Hahnemann Medical College and Hospital, Chicago, 1882; aged 66; died, August 16, of arteriosclerosis.

James Hamilton Walker ⊕ Effingham, Ill.; Barnes Medical College, St. Louis, 1896; aged 59; died suddenly, in August, of heart disease.

Enoch Anthony, Ottumwa, Iowa; Keokuk Medical College, 1895; member of the Iowa State Medical Society; aged 66; died, August 20.

Oliver Augustus Byers ⊕ Petersburg, Ind.; Central College of Physicians and Surgeons, Indianapolis, 1901; aged 50; died, August 24.

Samuel G. Herrington, Los Angeles; Miami Medical College, Cincinnati, 1879; aged 73; died, August 1, of arteriosclerosis.

Samuel Mays Bradshaw, Rock Valley, Iowa; Louisville (Ky.) Medical College, 1886; aged 71; died, in August, of angina pectoris.

Solomon W. Cohen, Cincinnati; Pulte Medical College, Cincinnati, 1878; aged 79; died, August 25, at Chicago, of heart disease.

Joseph Mangold, Lynch, Neb.; University of Cologne, Germany, 1920; died, June 21, of injuries received in an automobile accident.

Robert Lee Patton, Telford, Tenn.; College of Physicians and Surgeons, Baltimore, 1889; aged 62; died, August 17, of tuberculosis.

James H. Purifoy, Montgomery, Ala.; Reform Medical College, Macon, 1857; Civil War veteran; aged 91; died, August 20.

Volney C. Van Liew, Lennon, Mich.; Michigan College of Medicine, Detroit, 1884; aged 67; died, August 15, of angina pectoris.

Henry Hugh Brockman, Eldon, Mo.; American Medical College, St. Louis, 1877; aged 74; died suddenly, August 19.

Joshua C. Bridges, Sherman, Tex.; Homeopathic Medical College of Missouri, St. Louis, 1881; aged 88; died, August 15.

William B. Dills, New York (licensed, New York, 1898); also a dentist; aged 51; died, July 31, of cerebral thrombosis.

Edwin W. Ellis, Muncie, Ind.; Physio-Medical College of Indiana, Indianapolis, 1880; aged 73; died, July 25.

David S. Murphy, Kokomo, Ind.; Curtis Physio-Medical Institute, Marion, 1890; aged 58; died, August 24.

Gustavus Conklin ⊕ Orwell, Pa.; Jefferson Medical College of Philadelphia, 1862; aged 88; died, August 14.

G. D. Bayhan, Nipgen, Ohio (reregistered in 1896 by years of practice); aged 62; died, August 5.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

THE AMERICAN ACADEMY OF PROCTOLOGY

The Latest Thing in the Special Society Line

Of new medical or quasi-medical organizations there is no end. Hardly a week passes, surely not a month passes, but some new society devoted to furthering the interests of some individual or group is brought into being with more or less pomp and circumstance, and the physicians are invited to "come on in, the water's fine."

During the past week or ten days letters have been coming in of which the following are more or less characteristic:

A West Virginia physician writes:

> "I am enclosing a letter from the American Academy of Proctology at Evansville, Indiana. Would you recommend this organization?"

From Kansas comes this note:

> "I have been getting quite a little 'dope' from the American Academy of Proctology. The Secretary's office is 307 Cleveland Life Building, Evansville, Indiana. Please give me a report on this Academy. Does fellowship in it mean much?"

And from Ohio:

> "Will you please advise me regarding the standing of the officers of the American Academy of Proctology whose letter is enclosed?"

All of the correspondents sent in form letters—all alike—that they had received from the "Secretary-Treasurer" of the American Academy of Proctology at Evansville, Indiana, and signed "W. G. French, Secretary-Treasurer." The stationery gives the names of the directors of this new organization thus:

John M. Auld, President, Chicago, Ill.
Lindsey Morrison, First Vice-President, Hammond, Ind.
David O. Thomas, Second Vice-President, New Kensington, Pa.
Wm. G. French, Secretary & Treasurer, Evansville, Ind.

The letters, which are printed in imitation of typewriting with the name and address of the physician to whom it is sent filled in on the typewriter, read as follows:

> "*Dear Doctor:*—As a Proctologist, you are eligible for fellowship in *this Academy*. Our charter membership is limited to twenty-five, and you are invited to make application for active fellowship. You will note on the application blank, which we enclose, the requirements for Fellowship—Numbers 3 and 4 will be waived for charter members, provided the major part of their work is *Proctology*.
>
> "The object of this organization is, the investigation and dissemination of knowledge relating to the study of the Rectum, Anus and Colon, and to promote the science and art of the practice of this specialty in Medicine and Surgery. To elevate the standard of Proctology, to familiarize the members of the Medical Profession and Public with *its aims and* ideals, to protect the Public against irresponsible and unqualified practitioners. To receive applications for examination of Specialists in Proctology, to conduct examinations of such applicants, to issue certificates of qualification in Proctology and to perform such duties as will advance the cause of Proctology and encourage high ethical standards in this branch of the Medical Profession.
>
> "We would be pleased to have you affiliate with us. If agreeable to you, please fill out the application form, and return it to us at your earliest convenience, as we *only have seven vacancies to be filled*.
>
> *Fraternally yours,*
> W. G. French, Sec'y-Treas.
>
> "P. S. Would be glad to mail you a copy of our Constitution and By-Laws on request."

The letter, thus, is an invitation to become one of the last seven of twenty-five charter members of the American Academy of Proctology. Strange that it should require so many letters to get seven applications for this honor (?). Note also the reference to the five requirements for fellowship that are given on the Application Blank that accompanies the form letter. These requirements are:

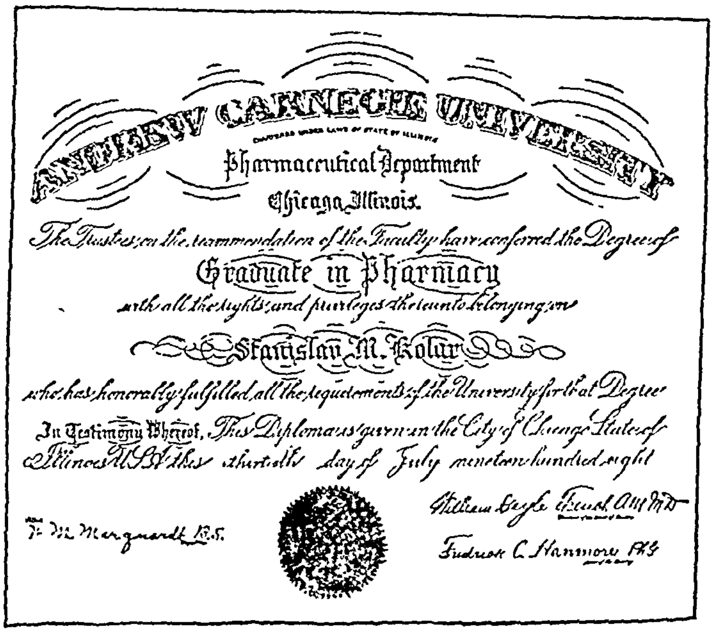
> "1. Graduates of Recognized Medical Schools.
> "2. Member of County and State Medical Societies.
> "3. In Practice of Proctology Past Five Years.
> "4. Examination Satisfactory to the Board of Censors.
> "5. Payment of *Membership* Fee $10.00 includes dues for ensuing year."

The application blank also calls for the name, address and various biographical and professional data. Referring again to the form letter that accompanies the application it will be noted that Requirements 3 and 4 for fellowship will be waived for charter members provided the major part of the work done by the physician is proctology. It is worthy to note also that some of the objects of the American Academy of Proctology are "to protect the Public against irresponsible and unqualified practitioners" of this specialty, "to conduct examinations" of specialists in proctology, and "to issue certificates of qualification" as well as to perform certain miscellaneous duties.

PROFESSIONAL RECORD OF WILLIAM GAYLE FRENCH

It seems reasonable to believe that the American Academy of Proctology of Evansville, Indiana, is the brain child of William Gayle French, M.D., of Evansville, Indiana, its Secretary-Treasurer. In view of the professional record of Dr. French, both in the near and distant past, The Journal feels that the profession should be given such information as may permit it to evaluate the probable ethical and scientific status of an organization founded by him.

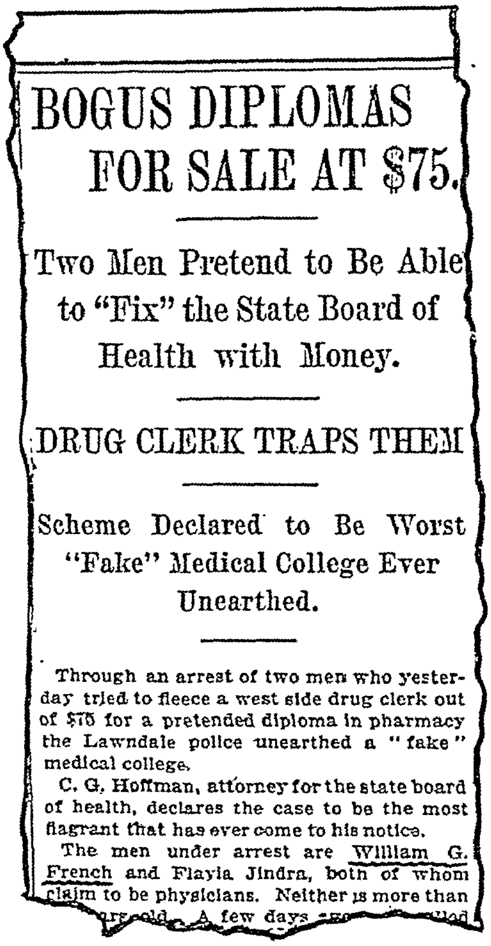
According to material in the American Medical Association's files, William Gayle French was born in 1885, and holds a diploma from the Hahnemann Medical College and Hospital of Chicago in 1906. He was licensed in Texas and Michigan in 1907, in Indiana in 1908, in Illinois in 1913 and in Maryland in 1917. The medical directories indicate that Dr. French has changed addresses many times since he was graduated. In 1906 he was at Brook, Indiana, in 1909 at Greensburg, Indiana, in 1910 at Indianapolis, in 1912 at Kingsbury and La Porte, Indiana. From 1914 to 1916 inclusive he was in Chicago. Other records show that French was in Detroit in 1912 and 1913, in Evansville, Indiana, and Chicago in 1920, and back again in Evansville in 1923.


Andrew Carnegie University
Chartered under laws of State of Illinois
Pharmaceutical Department
Chicago Illinois.
The Trustees, on the recommendation of the Faculty have conferred the Degree of
Graduate in Pharmacy
with all the rights and privileges thereunto belonging on
Stanislau M. Kolar
who has honorably fulfilled all the requirements of the University for that Degree
In Testimony Whereof, This Diploma is given in the City of Chicago State of Illinois U.S.A. this thirtieth day of July nineteen hundred eight
F. M. Marquardt B.S.
William Gayle French AM MD
Frederick C. Hammore PhG

Photographic facsimile of the fake diploma sold to a drug clerk for $75. Notice the signature of William Gayle French, A.M., M.D., signed to the diploma as "President of the Board of Trustees." Chicago newspapers reported this case, culminating in the arrest of French.

In 1907 William Gayle French and three other men incorporated the "Harvey Medical College and Hospital" of Chicago. This so-called college is not to be confused with the Harvey Medical College of Chicago, which really had teachers and laboratories, enrolled students and issued annual announcements, for the latter institution went out of practical existence in 1905. The William Gayle French Harvey Medical College changed its name in November, 1908, to Jackson University with French as its president. In September, 1909, the name was changed to Jefferson University with French as notary public. In May, 1912, the charter was dissolved, the notice of dissolution being filed by French and others. This so-called medical college, which apparently never had any actual existence as a teaching institution, appears to have issued at least one diploma to an individual who went over to Australia and attempted to practice medicine on it. The name of William Gayle French appeared on this bogus diploma as "President of the Board of Trustees." The whole matter was exposed in THE JOURNAL of the American Medical Association, August 2, 1919.

In 1908 the Illinois Board of Health *Bulletin* for October contained the name of W. G. French and stated: "Authorization for prosecution has been issued." The December issue of the same *Bulletin* carried the statement, under the name of W. G. French, "Has been practicing medicine, according to reports, in Chicago. Account of insufficient evidence case was non-suited." It will be remembered that W. G. French was not licensed in Illinois until 1913.



BOGUS DIPLOMAS FOR SALE AT $75.

Two Men Pretend to Be Able to "Fix" the State Board of Health with Money.

DRUG CLERK TRAPS THEM

Scheme Declared to Be Worst "Fake" Medical College Ever Unearthed.

Through an arrest of two men who yesterday tried to fleece a west side drug clerk out of $75 for a pretended diploma in pharmacy the Lawndale police unearthed a "fake" medical college.

C. G. Hoffman, attorney for the state board of health, declares the case to be the most flagrant that has ever come to his notice.

The men under arrest are William G. French and Flavia Jindra, both of whom claim to be physicians. Neither is more than old. A few days

Photographic facsimile of the opening paragraphs of a newspaper story appearing in the Chicago *Tribune*, Aug. 2, 1908, regarding the arrest of William Gayle Fench on the charge of selling a fake diploma to a drug clerk.

The Chicago *Tribune* for August 2, 1908, carried a story of the sale of a bogus diploma. The newspaper reported that William Gayle French and one Flavia Jindra had been arrested on the charge of attempting to fleece a drug clerk out of $75 for a pretended diploma in pharmacy issued by the so-called "Andrew Carnegie University." We reproduce in miniature the bogus diploma in which it will be noted that the name of William Gayle French appears as "President of the Board of Trustees." It will also be noted that after French's name appears the degree "A.M." as well as the "M.D."

For some years there was a fraudulent diploma mill known as the "Oriental University" operated from Washington, D. C., and a small town in Virginia. In a "Catalogue" of this fake institution, issued in 1912, there appears the name of William G. French, M.D., Kingsbury, Indiana, as a "graduate" to whom had been given the degrees "A.M." and "LL.D." In its 1916 catalogue the name "Professor W. G. French, College President" appears as one of the "graduates" of the Oriental University who had received one of the "Doctor diplomas." The Oriental University was finally put out of business, being declared a fraud by the United States Government and debarred from the use of the United States mails.

In October, 1915, news items appeared in Chicago papers reporting the arrest of William Gayle French and another physician in connection with an alleged abortion produced on a young woman who died under the operation. French, who according to the report administered the anesthetic, was exonerated. The other man seems to have been held by the grand jury.

In June, 1918, French made the front page in Detroit newspapers. A story under the head "Warrants Out For Quacks" recorded that warrants had been issued for the arrest of W. G. French, charging him with violating the state law prohibiting the issuance of advertisments for the treatment of venereal diseases. The Detroit *Times* for July 1, 1918, under the heading "Dr. French Flees City" said in part:

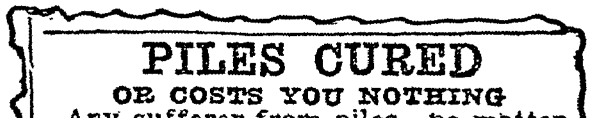
> "The quacks are on the run. Dr. W. G. French, whose 'Sick Men' advertisements were the delectation of readers of morning and evening family newspapers, has left the city two jumps ahead of the warrant which Special Prosecutor Henry A. Montgomery swore out against him following the *Times* exposures. . . .
>
> "Dr. French left between two days. When the officers went to his place at No. 61 Monroe-ave. they found the place locked. The place was raided, and papers were seized. Now Prosecutor Jasnowski proposes issuing a new warrant against French charging him with 'obtaining money under false pretenses.' A victim complains that he paid French money for tuberculosis treatment when he did not have this disease at all."

A letter from the Secretary of the Michigan State Board of Registration in Medicine, written July 23, 1918, had this to say in connection with French:

> "DR. WILLIAM GAYLE FRENCH, Detroit,—Two warrants issued against him, one for immoral advertising and the other for obtaining money under false pretenses. Warrants were not served owing to the fact that he left for parts unknown before service could be effected."

In 1920 French, apparently, was back in the old home town, Evansville, Indiana, and according to a letter received from an Evansville physician, in February of that year, French was at that time associated with Steven E. Luckett, for years a notorious advertiser.

In August, 1921, a "pile cure" advertisement of the "National Health Laboratories," Lock Box 542, Chicago, Ill., appeared in one of the Evansville, Indiana, papers. The advertisement described an alleged cure that was said to dissolve piles in ten minutes, and to cure many of the worst cases in four days. Sufferers were urged to write to Lock Box 542, Chicago, and get information about the free treatment. Those who answered the advertisement that appeared in the Evansville paper received a form letter from the "National Health Laboratories" of Chicago, enclosing a professional card of William G. French of Evansville, and stating that French would administer the "painless dissolvent treatment." The letter stressed French's "fifteen years of experience" and stated that as French was a busy physician, and in order to prevent the patient waiting they were enclosing one of the "doctor's cards on which an appointment has been made for you."



PILES CURED
OR COSTS YOU NOTHING
Any sufferer from piles—no matter how long standing, can be quickly cured without operation or loss of time. Write and we will send full particulars absolutely FREE. Address
National Health Laboratories
Lock Box No. 32, Chicago, Ill.

Photographic facsimile (slightly enlarged) of the second series of "pile cure" advertisements appearing in an Evansville, Indiana, paper. This advertisement appeared in July, 1924. Inquiry brought the statement that Lock Box 32 was rented by William Gayle French!

FRENCH'S PROMISE OF REFORM

In 1923 William Gayle French declared that he was going to "run straight."

One year later, in July, 1924, another pile cure advertisement appeared in the same Evansville paper. This time it was the "National Health Laboratories, Lock Box 32, Chicago, Ill." A prospective patient from Evansville wrote to the National Health Laboratories, Lock Box 32, Chicago, and received in reply a card *mailed from Evansville*, reading: "Dr. Wm. G. French. Practice Limited to Diseases of the Rectum. Piles and other diseases of the rectum and anus treated without surgery or detention from business."

This matter was brought to the attention of the Bureau of Investigation and it was learned that Lock Box 32, Chicago, Ill., was rented by William Gayle French, Evansville, Indiana! And this was a year after French had voluntarily announced that he was going to practice ethical medicine!!

In February, 1925, William Gayle French, for some reason not evident on the surface, but not difficult to understand by those who are familiar with local conditions, was accepted as a member of his local medical society—that of Vanderburgh County, Indiana. Immediately thereafter French attempted to qualify as a Fellow of the American Medical Association. He was told that on account of his past record his application for Fellowship would be brought before the Judicial Council of the American Medical Association. French wrote admitting that his past actions had been "wrong and unethical" but implying, without making a positive statement to that effect, that since his promise in 1923 he had been practicing ethical medicine. He added:

> "I am very sorry indeed my past was as it was, and assure you it never did meet my approval, and my conscience was always disturbed. However, I never was as bad as I was thought to be."

On receipt of his letter French was written to asking whether he had, at that time or recently, a connection with an alleged laboratory supposed to be located in Chicago, that had advertised in Evansville newspapers. Information on this point was requested in order that a statement from French could be presented to the Judicial Council. French made no statement, either verbally or by letter on this point, but on May 8, 1925, he withdrew his application for Fellowship.

During the time that elapsed between his application for Fellowship and his withdrawal of that application, a display advertisement appeared in the program of a vaudeville theater at Evansville, notifying the Evansville public that W. G. French specialized in "rectal diseases." This appeared during the week of April 12, 1925, two months after he had been admitted to membership in his local medical society.

Such then is the professional history of William Gayle French, M.D., of Evansville, Indiana, the Secretary-Treasurer of the "American Academy of Proctology," which is to conduct examinations of specialists in proctology, issue certificates of qualification and "encourage high ethical standards" in this branch of medical practice.

Under the circumstances The Journal feels constrained to suggest that proctologists who may have been invited to join the American Academy of Proctology withhold their applications—and their $10—until better evidence is available to indicate that this new organization is going to be so conducted as to be an honor to the profession.

Federal Health Laws.—The federal health laws as enacted from time to time are the direct results of repeated epidemics. On account of smallpox, vaccine virus was introduced voluntarily by an officer of the service in 1807. In 1813 a law was passed to encourage vaccination by providing for the distribution of vaccine virus. The first permanent quarantine law, enacted April 29, 1878, followed a severe and widespread epidemic of the previous year. The passage of the law of Feb. 15, 1893, was intimately associated with the cholera outbreak in Europe in 1892, and the quarantine act of June 19, 1906, followed the epidemic of yellow fever in the Southern states in 1905. Under these and a few minor laws, the national system or maritime quarantine was developed. A peculiar feature of this system is that existing regulations automatically become operative on the occurrence of epidemics in foreign ports, thus obviating the necessity for the promulgation of quarantine against a particular port.—Kerr, J. W.: *Pub. Health Rep.* **40**:1679 (Aug. 14) 1925.

Correspondence

THE INTERALLIED SURGICAL CONFERENCE

To the Editor:—On page 281, The Journal, July 25, appears the following statement from your Belgian correspondent:

> "It was also Depage who, together with his friend Tuffier, induced the allied governments to establish at Paris an interallied surgical conference. The great work accomplished by this conference and the far-reaching influence that it had on the evolution of modern war surgery are well known."

In the interest of historical truth it may be desirable to point out that this statement is not accurate. During the war I had the honor to be chairman of the council of consultants attached to the British army. While in France in 1914-1915, I had inspired at Rouen the creation of the first medical society formed in connection with any of the allied armies. The success of this society, to which our French colleagues were invited, and to which by solid knowledge, vigor of declamation and gaiety of rhetoric they added great interest, caused me to suggest to the then director general, Sir Alfred Keogh, the formation of a surgical society, to include all the allies, and to meet in Paris. At his suggestion I wrote a letter which went forward to the secretary of state for war, Mr. Lloyd George. Mr. Lloyd George took the suggestion eagerly and communicated with the French government, which gave immediate support to the suggestion. The first meeting of selected representatives of all the allied armies took place in Paris. At that meeting my original letter to Mr. Lloyd George, translated into French, was read by the under secretary of state for the "Service de santé" as a letter from Mr. Lloyd George to the French government. The inauguration of the conference was then and there ascribed to the suggestion contained in that letter. Tuffier was elected chairman, and an excellent leader he soon proved to be. He and Depage worked loyally and untiringly to make the conference, in all its many meetings, a great success. But neither had any voice in the initiation.

Berkeley Moynihan, Leeds, England.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

ZINC STEARATE POISONING

To the Editor—My little 8 months old grandson yesterday, in spite of all precautions, inhaled some zinc stearate, followed by violent coughing and vomiting, but no cyanosis. The articles I can find in The Journal do not refer to the later symptoms. Can you give me the later symptoms and results when death is not produced at once? Are there any true poisoning symptoms other than local lung symptoms? Has any treatment been advised? This patient does not seem very ill or cough very much, but has a temperature of 102.

E. T. Edgerly, M.D., Ottumwa, Iowa.

Answer.—The effect produced by the aspiration of zinc stearate consists in the production of an acute disturbance of the bronchi and lungs. The cases that have been reported may be divided into several types:

1. The fulminating variety, in which the onset is sudden and stormy, with rapid respirations and cyanosis. Complete asphyxia may occur, and the patient may die within twenty-four hours after the accident.

2. In another group an acute bronchopneumonia may develop with the characteristic signs and symptoms, and the process may last from two to three weeks, the temperature varying from 99 to 105 F. Respirations may be rapid. Cyanosis is frequent at the onset. The pulse is rapid, and abdominal distention may occur. Recovery is by lysis during the third week.

3. In a third group of cases, the course of the illness is brief. The patients, after the initial suffocative symptoms, recover gradually without definite involvement of the lungs.

In this group the temperature may be only slightly elevated, and the symptoms may last only three days.

Heiman and Aschner have shown experimentally that the insufflation of zinc stearate produces interstitial pneumonia and peribronchitis. They have also shown that the lesions produced are more severe or more lasting than those produced by other powders. The evidence at hand does not justify the conclusion that zinc stearate acts as a mineral poison, but on account of its physical properties and is tenacious qualities, it causes occlusion of bronchi and lung alveoli.

Essentially, the treatment is prophylactic. Manufacturers should dispense the powder only in a container with a suitable self-closing tip. In other respects the treatment is similar to that of any bronchopneumonia. Oxygen inhalations have been warmly advocated.

ROBES' ANTI-RHEUMATIC INJECTIONS

To the Editor:—The enclosed item about Robes' Anti-Rheumatic Injections came into my hands today and it is sent to you hoping that attention being directed to it in your "Propaganda for Reform" column may have a deterrent effect. It is unfortunate that with all the activity exercised by the U. S. government in the matter of prohibition, the mails can still be used for such dangerous and nefarious purposes.

William F. Lockwood, M.D., Baltimore.

Answer.—While the advertising for Robes' Anti-Rheumatic Injections, which is sent out by Robes' Intravenous Products, Inc., leads one to believe that the product is some form of streptococcus vaccine, an advertisement containing a report of the analysis of the product indicates that the preparation consists of nothing more than minute amounts of mercuric chlorid and traces of guaiacum in a physiologic solution of sodium chlorid, containing about 7 per cent. of alcohol. Neither mercuric chlorid nor guaiacum is recognized as having antirheumatic properties. The preparation has not been accepted for New and Nonofficial Remedies.

The provisions of the Food and Drugs Act apply to the trade packages of medicinal products; that is, a prosecution for unwarranted claims can be instituted under the Food and Drugs Act, only if these claims are made on or in the trade package. Advertising matter circulated through the mail does not come under the law. Government authorities might institute proceedings against a product which is marketed with unwarranted therapeutic claims under the postal law which is invoked in the case of mail order frauds. It would probably be a difficult matter to secure a prosecution for products that are exploited to the medical profession with unwarranted claims, for the reason that it could undoubtedly be shown that some physicians had used such products. The only protection against unwarranted therapeutic claims made for proprietary products which physicians have today is their own critical judgment and, if they wish to avail themselves of it, the protection afforded by the Council on Pharmacy and Chemistry of the American Medical Association. Physicians who limit their use of unofficial products to those that are admitted to New and Nonofficial Remedies will advance rational medicine, protect themselves and benefit their patients.

DISINFECTION AFTER TUBERCULOSIS

To the Editor:—What is considered the best method of disinfecting a house that has been occupied for three or four years by a tuberculous patient?

S. J. Hanks, M.D., Hurley, N. M.

Answer.—It is generally recognized by the more progressive health authorities that house fumigation as heretofore practiced is of almost no value in the prevention of the spread of disease. Many pathogenic germs have only a brief existence outside the body, while even the more resistant varieties are not found on the walls or ceilings or hiding in the curtains of a sickroom. They are found on articles that have come in contact with the patient. The tubercle bacillus is among the more resistant of the disease germs, partly because of the presence of a waxy substance in the cell wall and partly because, in pulmonary tuberculosis, it leaves the body enclosed in mucous matter which protects it from the action of sunlight and other germicidal agents. *It is doubtful* whether the usual fumigators would be of any value in destroying these germs. The only practical, reasonable and effective treatment for a house or room that has been occupied by a tuberculous patient is a thorough cleansing with soap and water. Mechanical removal of material likely to contain the germs is preferable to disinfection in this case.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

American Board of Otolaryngology: Chicago, Oct. 19. Sec., Dr. H. W. Loeb, 1402 South Grand Blvd., St. Louis, Mo.

Arizona: Phoenix, Oct. 6-7. Sec., Dr. W. O. Sweek, 404 Heard Bldg., Phoenix.

California: Sacramento, Oct. 19-22. Sec., Dr. Charles B. Pinkham, 906 Forum Bldg., Sacramento.

Colorado: Denver, Oct. 6. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

District of Columbia: Washington, Oct. 13. Sec., Dr. Edgar P. Copeland, Stoneleigh Court, Washington.

Florida: Tallahassee, Oct. 13-14. Sec., Dr. W. M. Rowlett, Citizens Bank Building, Tampa.

Georgia: Atlanta, Oct. 13-15. Sec., Dr. C. T. Nolan, Marietta.

Hawaii: Honolulu, Oct. 12-15. Sec., Dr. Guy C. Milnor, 401 Beretania St., Honolulu.

Idaho: Boise, Oct. 6. Commissioner of Law Enforcement, Mr. F. A. Jeter, Boise.

Illinois: Chicago, Oct. 6-8. Director, Mr. A. M. Shelton, Capitol Bldg., Springfield.

Iowa: Des Moines, Oct. 14-16. Dir. of Examinations and Licenses, Mr. H. W. Grefe, Des Moines.

Kansas: Topeka, Oct. 13. Sec., Dr. Albert S. Ross, Sabetha.

Michigan: Lansing, Oct. 13-15. Sec., Dr. Guy L. Connor, 707 Stroh Bldg., Detroit.

Minnesota: Minneapolis, Oct. 6-8. Sec., Dr. Thomas S. McDavitt, Lowry Bldg., St. Paul.

Missouri: Kansas City, Oct. 27-30. Sec., Dr. James Stewart, Jefferson City.

Montana: Helena, Oct. 6. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

National Board of Medical Examiners: Part III, Baltimore, Oct. 15. All applications for this examination must be made on or before Oct. 1. Sec., Dr. J. S. Rodman, 1600 Walnut St., Philadelphia.

New Jersey: Trenton, Oct. 20-21. Sec., Dr. Alex. Macalister, Trenton Trust Bldg., Trenton.

New Mexico: Santa Fe, Oct. 12-13. Sec., Dr. W. T. Joyner, Roswell.

New York: Albany, Buffalo, New York City and Syracuse, Sept. 21-24. Chief, Education Dept., Mr. Herbert J. Hamilton, Albany.

Rhode Island: Providence, Oct. 1. Sec., Dr. Byron U. Richards, State House, Providence.

Utah: Salt Lake City, Oct. 6. Director of Regis., Mr. J. T. Hammond, 412 State Capitol Bldg., Salt Lake City.

West Virginia: Charleston, Oct. 13. Sec., Dr. W. T. Henshaw, Charleston.

Wyoming: Cheyenne, Oct. 5-7. Sec., Dr. G. M. Anderson, State Capitol, Cheyenne.

Washington July Examination

Mr. William Melville, secretary of the Washington Department of Licenses, reports the oral and written examination held at Olympia, July 6, 1925. The examination covered 13 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 24 candidates examined, 22 passed and 2 failed. Twenty-nine candidates were licensed by reciprocity. One candidate was licensed by endorsement of credentials. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
University of California School of Medicine	(1925)	88.3
Northwestern University Medical School	(1925)	81, 86
Rush Medical College	(1925)	86.3, 88
University of Illinois College of Medicine	(1925)	81.4
University of Minnesota Medical School...(1923) 82.4,	(1925)	82
University of Oregon Medical School	(1924)	80, 82
University of Manitoba Faculty of Medicine	(1925)	81, 83, 84.7, 85.2 87.3
McGill University Faculty of Medicine (1922) 82.8, (1924) 92.6	(1914)	82.3,
Queens University Faculty of Medicine	(1924)	84.2, 88.2
University of Western Ontario Medical School	(1923)	79
University of Bishop Faculty of Medicine	(1903)	80.2

College FAILED	Year Grad.	Per Cent.
Trinity Medical College	(1904)	73.9
Queens University Faculty of Medicine	(1910)	66.1

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Medical Evangelists	(1923), (1924, 2)	California
University of Colorado School of Medicine	(1923)	Colorado
Bennett Medical College	(1912)	Nebraska
College of Physicians and Surgeons, *Chicago* (1908) N. Dakota	*(1901)*	S. Dakota
Northwestern University Medical School (1912), (1925) Minnesota, (1924) Illinois	(1889)	Iowa
Rush Medical College	(1889) Idaho, (1922), (1923)	Illinois
University of Illinois College of Medicine	(1915)	S. Dakota
State University of Iowa College of Med.	(1900), (1924)	Iowa
Louisville Medical College	(1893)	Iowa
Tulane University	(1884)	Texas
Harvard University	(1918)	Minnesota

service. It may be an aggravation of injuries which in their origin or primary form were apart from the employment, in which event, if sudden and catastrophic and an incident of service, it will supply a new point of departure, a new starting point in the chain of causes, and be reckoned in measuring the award as an injury itself. It was argued that in the statute infection was coupled with disease as something other than an accident or an injury, though a possible concomitant, but the court thinks that the intention was, by the addition of the words "such disease or infection as may naturally and unavoidably result therefrom," to enlarge and not to narrow. Infection, like disease, may be gradual and insidious, or udden and catastrophic.

Osteopaths Not Given Right of Physicians and Surgeons

(State ex rel. Finch, Co. Atty., v. Eustace (Kan.), 233 Pac. R. 109)

The Supreme Court of Kansas, in reversing a judgment that was rendered in favor of the defendant and in entering one for the plaintiff, says that the plaintiff commenced this action to obtain a judgment declaring that those licensed to practice osteopathy under the laws of that state cannot under such license practice optometry without a certificate of registration as an optometrist. The defendant contended that he had the right to practice optometry, under his certificate of registration as an osteopath, by virtue of Section 65—1508 of the Revised Statutes of Kansas, which provides that nothing in the act concerning the practice of optometry "shall be construed to prevent regular physicians and surgeons who are registered with the state medical board, as such, from testing eyes and fitting glasses." He supported this contention by arguing that the practice of osteopathy is a part of practicing the healing art, and that, so far as the practice of that art is concerned, the statute providing for the registration of optometrists makes no distinction between those who practice healing art by the administration of medicine or by surgery and those who practice that art according to the science known as osteopathy. Osteopathy, when practiced by a physician or surgeon as is defined in Section 65—1005 of the revised statutes, may be and probably is a part of the art or science of healing; but the practice of osteopathy, while it may be a part of the art of healing, is not comprehended within the term "practicing medicine," nor within the term "surgical operation" as used in Section 65—1005, which in part reads:

> Any person shall be regarded as practicing medicine and surgery within the meaning of this act who shall prescribe, or who shall recommend for a fee, for like use, any drug or medicine, or perform any surgical operation of whatsoever nature for the cure or relief of any wounds, fracture or bodily injury, infirmity or disease of another person.

Section 65—1508, providing that nothing in the optometry act shall be construed as preventing regular registered physicians and surgeons from practicing optometry, does not include those who are registered to practice osteopathy.

Source of Knowledge Determines Competence as Witness

(Dabbs v. Richardson et al. (Miss.), 102 So. R. 769)

The Supreme Court of Mississippi, Division B, holds, in this will case, that, under Section 3695 of the Code of 1906 of that state, a physician is not a competent witness to testify as to facts and information received by him in his capacity as a physician. He is a competent witness to testify concerning the mental condition of a person, though he is the physician of such person, if his information is derived from social or business relations and not by professional relations. But where his knowledge is derived partly from his relation as a physician and partly from social and business relations, the trial judge may determine his competence in view of all the evidence, and if it appears that his information physician influenced his judgment, the judge may exclu evidence from the jury.

Where there is a clear distinction between knowl derived in a business and social way and knowledge der in a professional way, the testimony of a physician is c petent so far as it is gained from his business and soc relation with the person whose sanity is the subject of inquir However, where a physician is attending a patient constantly, and dealing with him in a professional capacity, during which and by which he must necessarily acquire information as to what his mental status is, it is within the discretion of the trial judge who has the opportunity to judge of the witness and observe him while he is testifying and during the course of examination to say whether the witness can in fact separate his knowledge acquired in business and in a social way from his knowledge acquired professionally. The witness is not the final and conclusive judge as to whether he can and does separate knowledge acquired professionally or in a business or social way or both.

In this case it was apparent from the whole examination that most of the knowledge of the testator's condition was derived from association during the professional visits of the physician, and, naturally, a physician would note more attentively during the period of professional treatment the acts and conduct of his patient. Of course there is much that can be observed in business and social intercourse bearing on a person's sanity; and the fact that such observations are made by a physician does not disqualify him, provided his knowledge is not obtained during professional employment. The lines in many cases will be exceedingly difficult to draw. As to the testimony excluded in this case as to the mental condition of the testator, the supreme court thinks that under the facts of the case necessarily a part of the witness' knowledge of such condition was obtained by his visit to and treatment of the testator during the days of his last illness, and the court is unable to say that there was error in excluding this part of the physician's testimony.

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Chicago, Oct. 20-24. Dr. Luther C. Peter, Chestnut and 20th Streets, Philadelphia, Secretary.
American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Hot Springs, Va., Sept. 16-18. Dr. James E. Davis, 111 Josephine Avenue, Detroit, Secretary.
American Association of Railway Surgeons, Chicago, Oct. 21-23. Dr. Louis J. Mitchell, 29 East Madison Street, Chicago, Secretary.
American College of Radiology and Physiotherapy, Chicago, Oct. 19-22. Dr. Roy W. Fouts, 121 South 33d Street, Omaha, Neb., Secretary.
American College of Surgeons, Philadelphia, Oct. 26-30. Dr. Franklin H. Martin, 40 East Erie Street, Chicago, Director-General.
American Electrotherapeutic Association, Chicago, Sept. 15-17. Dr. Richard Kovacs, 223 East 68th Street, New York, Secretary.
American Public Health Association, St. Louis, Oct. 19-22. Mr. Homer N. Calver, 370 Seventh Avenue, New York, Executive Secretary.
American Roentgen Ray Society, Washington, D. C., Sept. 22-25. Dr. Charles L. Martin, Baylor Hospital, Dallas, Texas, Secretary.
Association of Military Surgeons of the United States, New York, Oct. 8-10. Col. J. R. Kean, U. S. A. Ret., Army Medical Museum, Washington, D. C., Secretary.
Central States Pediatric Society, Chicago, November 6-7. Dr. H. T. Price, Westinghouse Building, Pittsburgh, Secretary.
Colorado State Medical Society, Colorado Springs, Sept. 29-Oct. 1. Dr. F. B. Stephenson, Metropolitan Building, Denver, Secretary.
Delaware State Medical Society, Wilmington, Oct. 13-14. Dr. W. O. La Motte, Industrial Trust Building, Wilmington, Secretary.
Indiana State Medical Association, Marion, Sept. 23-25. Mr. T. A. Hendricks, Hume Mansur Building, Indianapolis, Executive Secretary.
Interstate Postgraduate Assembly of America, St. Paul, Minn., Oct. 12-16. Dr. W. B. Peck, nson St., Freeport, Ill. ging Director.
Kansas City Clinic City, Mo., Dr. James R. McVay, Rialto B City, Mo., S Dr. A. T.
Kentucky State M Owensbor McCormack, 532 Louisville, ich., Sept.
Mississippi Valley uberculosis ing, Mich., 15-17. Dr. T. Shiawassee Executive Secr Oct. 2.
Missouri Valley, M St. Mo., Dr. Charles Woo 31st St
y.
ia, Medic to of
F. Do Pi
Medic C
29 Mai
So
W
Me
Bui

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to The Journal for a period of three days No foreign journals are available prior to 1920, nor domestic prior to 1923 Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested)

Titles marked with an asterisk (*) are abstracted below.

American Journal of Tropical Medicine, Baltimore

5: 269 315 (July) 1925

*Basal Metabolism of Normal Young Man as Affected by Tropic Residence of One Year W D Fleming, Washington, D C—p 283.
Hookworm in Palestine A Felix, Jerusalem—p 291
*Blood Serum Globulin in Leprosy. C. N. Frazier and H. Wu, Peking, China—p 297
*Spirochete Like Filaments in Blood of Dengue Patients and Normal Individuals M W. Hall, Manila, P. I—p. 307.

Effect of Tropics on Basal Metabolism.—Basal metabolic rates, respiratory quotients and other metabolism data are presented by Fleming for a normal white male, 22 years old, seven months after arrival in the tropics and again after a thirteen months' interval. For the first series the basal metabolic rate averaged 3 per cent. minus, for the second series 7 per cent. minus

Blood Serum Globulin in Leprosy.—The results of the investigations made by Frazier and Wu indicate that Sia's globulin precipitation test is positive in certain cases of leprosy, particularly in the nodular and mixed types of the disease Of the thirty-two cases of leprosy in which this test was made, seventeen were positive. In all these cases the percentage of blood serum globulin was estimated. The nodular cases showed an average of 4 68 per cent ; the mixed cases, 4.52 per cent , the active maculo-anesthetic cases, 4 23 per cent. and the latent maculo-anesthetic cases an average of 3 11 per cent It was impossible to see any relationship between the serum globulin content of the blood of the cases treated with the ethyl esters of chaulmoogra oil, and those not treated, sufficient to make it of any value as a clinical test for determining the efficacy of such treatment. It is suggested, however, that the blood serum globulin and the precipitation test be studied in this relation to ascertain whether or not there is any decrease in the amount of serum globulin or the positiveness of the test parallel with clinical improvement. Apparently the serum globulin in long standing cases, in which the infection has become clinically latent, does decrease to a point within its normal range. This has been true of the malculo-anesthetic cases in this series which have never had any form of treatment, and suggests the close relationship of activity of infection and serum globulin content in leprosy.

Motile Filaments in Blood.—Attention is called by Hall to the existence in the blood of motile filamentous elements, highly suggestive of living organisms They occur in normal blood as well as in various pathologic conditions It is suggested that some, at least, of the forms described by Couvy and by Verwoort from dengue and allied fevers may be of this type Incidentally, the same may be said of the spirochetes described by Blanchard and Lefrou in the blood of blackwater fever. The use of the iron hematoxylin stain of Heidenhain after wet fixation in Bouin's fluid affords a means of distinguishing these spirals from true living organisms, although their differentiation from any forms known at present should not be difficult under the dark field once the existence of these forms is taken into consideration Some evidence has been adduced in support of the opinion that the platelets rather than the red cells are the main source of these filaments.

Annals of Clinical Medicine, Baltimore

4: 1 88 (July) 1925

Tularemia E Francis, Washington D C—p 8
*Sprue B K Ashford, San Juan, P R—p 13
Present Status of Chlorin Gas Therapy. E B Vedder, Edgewood Arsenal, Md—p 21
*Surgical Treatment of Angina Pectoris H. H Kerr, Washington, D C.—p 30
*Spontaneous Rupture of Heart; Seven Cases. N. D. C. Lewis, Washington, D C—p 36
Symptomatology of Diseases of Vessels of Extremities in Light of Their Pathology L Buerger, New York—p 54
*Pernicious Anemia O B Hunter, Washington, D. C—p 62
*Splenomegaly; Case of Splenic Anemia of Banti Type in Child of Five F Leech, Washington, D C—p 73

Vaccine Therapy of Sprue.—The benefit accruing from the use of *Monilia psilosis* vaccines in the treatment of sprue has been so great that Ashford says he would not like to have to treat sprue without them When vaccines have been used in addition to diet, the outstanding symptoms of sprue have disappeared in two thirds of the time required by diet alone.

Surgical Treatment of Angina Pectoris.—Kerr has resected the left superior cervical ganglion, together with the superior cardiac nerve in four cases of angina pectoris with complete relief in two, partial relief in one and failure in one. Both of the successful cases were men. One had a high blood pressure and cardiac change, and the other a normal blood pressure and no evidence of a heart lesion. The case of partial relief was in a woman suffering from bilateral pain. Both superior sympathetic ganglia were removed. Her blood pressure was high but there was no evidence of cardiac disease. The case in which failure is recorded was in a man who had bilateral pain. His heart was decompensated at the time of operation Tachycardia, dyspnea and general anasarca were also present His blood pressure was $^{150}/_{90}$ He was operated on under local anesthesia three times. First, the left superior ganglion was removed without relief. Then the right superior ganglion was removed without relief, and finally the middle cervical ganglion of the left side and the left stellate ganglion were resected. The character of the pain changed somewhat, but there was no relief and the patient died a cardiac death three months later.

Spontaneous Rupture of Heart.—Seven cases of heart rupture occurring in the mentally disordered, with full necropsy report, are analyzed by Lewis.

Pernicious Anemia.—In a series of forty-two cases of addisonian anemias under Hunter's observation, only two have apparently been cured by transfusion, drugs and dietetic measures Of the forty-two cases, thirty-four were Type II blood, three were Type IV, and one case was Type III, according to the Moss method of blood grouping Whether or not there is any significance to the large number of Type II cases, has not been determined Two of the patients died after transfusion, with hemoglobinemia and hemoglobinuria, indicating hemolysis, one having been transfused thirty-six times, the other twenty-eight times. Both were given homologous blood after direct matching in a last desperate attempt to bring them out of a severe relapse. On the other hand, one patient has had thirty-two transfusions, many times by the same donors without any hemolysis or untoward reactions All the patients have either shown a frank pyorrhea alveolaris or increased amount of oral bacterial flora, particularly the spirillary forms

Splenic Anemia.—In Leech's opinion, Gaucher's disease, von Jaksch's disease and Banti's disease, are all of the splenic anemia type, the difference being that they are descriptions of the conditions as they occur in various stages. As far as cure is concerned, it is purely surgical

Archives of Dermatology and Syphilology, Chicago

12: 159 324 (Aug) 1925

Nodosites Juxta Articulaires P D Gutierrez, Manila—p 159
Multiple Sarcoid Like Granulomas of Skin of Undetermined Nature J V Klauder, Philadelphia—p 171
*Congenital Ichthyosiform Erythroderma XLII. R S Weiss and N Tobias, St Louis—p 182
Studies of Hair V. Factors Affecting Growth. C. H. Danforth, Berkeley, Calif—p 195
*Epidermophytosis, Sequel of Vaccination. W. H Guy and F M Jacob, Pittsburgh—p 233
*Dermatitis in Association with Disease or Injury of Peripheral Nerves S W Becker, Rochester, Minn—p 235
Vernes Flocculation Test for Syphilis A B Baylis, A E Sheplar and W J MacNeal, New York—p 242
*Dermatosis Industrialis in Blue Print Worker Due to Chromium Compounds H J Parkhurst, Toledo, Ohio—p. 253
*Skin Diseases Due to Emotional Disturbances. H H Hazen and E R. Whitmore, Washington, D C—p 261.
*Ringworm of Scalp; Case in Adult G Pernet, London—p 267.

Congenital Ichthyosiform Erythrodermia.—Six cases of congenital ichthyosiform erythrodermia are reported by Weiss and Tobias. The earliest time of appearance was at the age of 2 months, the latest at 9 years. In four of the cases, there was a distinct familial tendency. The pathology is similar to that of ichthyosis vulgaris.

Epidermophytosis, Sequel of Vaccination.—Incidental to a recent smallpox epidemic and consequent widespread vaccination, Guy and Jacob have seen thirty-five cases presenting unusual dermatologic sequelae. The history in all cases was practically the same. Subsequent to complete healing (as late as six weeks after healing) there appeared an eruption, beginning in the vaccination scar as an erythematous, slightly scaly spot. After from forty-eight to seventy-two hours, the lesion was sharply marginated, slowly spreading, and the scaling more abundant. Lesions enlarged gradually until they measured from 4 to 8 cm. in diameter. New lesions appeared near the original lesion in about one third of the cases. In one or two cases, confluence of lesions was noted, and in two cases similar lesions appeared in distant parts of the body. The duration varied from four days to three months. Direct examination in twenty cases revealed a fungus, which was successfully cultivated ten times. Two types of organisms were isolated; *Epidermophyton inguinale*, and one which developed a white colony without any pigment formation, which has not as yet been definitely identified. General examination of these patients revealed an interdigital epidermophytosis on the feet in ten cases, and an onychomycosis in one case. Therapeutic agents usually used for epidermophytosis proved effective. Approximately 100 cultural investigations were made of the vaccine lymph supplied by the department of health of the city of Pittsburgh, with uniformly negative results.

Dermatitis Associated with Nerve Injury.—A case is reported by Becker of eczematoid dermatitis of the right side of the face, appearing three weeks after section of the posterior root of the gasserian ganglion. Herpes at no time was suggested. Pyorrhea and dental caries were also present on that side. The condition was little influenced by treatment, and had been present for about four years. Experimental and clinical observations would seem to indicate that toxic, infectious or mechanical irritation of the sensory nerves can be instrumental in producing this type of lesion.

Dermatosis Due to Chromium.—The three cases reported by Parkhurst show that erythematovesicular and small papular dermatitis may follow contact of potassium bichromate with the skin in susceptible persons, and that this dermatitis may be avoided by frequently rinsing the exposed skin with a saturated solution of sodium bisulphite, and then with water.

Skin Diseases Due to Emotional Disturbances.—Hazen and Whitmore assert that many diseases, such as rosacea, may be aggravated by an emotional upset, either as the result of a cutaneous hyperemia or of a disturbed secretion in the gastro-intestinal tract.

Ringworm of Scalp.—Pernet's patient contracted the disease from her 7 year old daughter. A younger brother also became infected. Both these cases were evidently contact infections.

Archives of Internal Medicine, Chicago

36: 150-291 (Aug.) 1925

- *Systolic Blood Pressures in Young Men. H. S. Diehl and K. H. Sutherland, Minneapolis.—p. 150.
- *Pathogenicity of Trichomonas Intestinalis. H. Tsuchiya, Battle Creek, Mich.—p. 174.
- *Primary Vascular Nephritis, or Renal Periarteritis Nodosa. J. J. Keegan, Omaha.—p. 189.
- *When Do Lungs Return to Normal Following Exposure to War Gases? A. R. Koontz, Edgewood, Md.—p. 204.
- Formaldehyd Poisoning; Fatal Case. B. S. Kline, Cleveland.—p. 220.
- *Changes in Heart Rhythm Associated with Cheyne-Stokes Respiration. Displacement of Pacemaker to Branches of Bundle of His. W. H. Resnik and F. W. Lathrop, Baltimore.—p. 229.
- *Output of Heart per Beat in Heart Disease. I. M. Rabinowitch, Montreal.—p. 239.
- Diseases of Liver. I. A Survey of Tests for Hepatic Function. C. H. Greene; A. M. Snell and W. Walters, Rochester.—p. 248.
- Diseases of Liver. II. A Comparative Study of Certain Tests for Hepatic Function in Experimental Obstructive Jaundice. A. M. Snell, C. G. Greene and L. G. Rowntree, Rochester, Minn.—p. 273.

Systolic Blood Pressures in Young Men.—A study has been made by Diehl and Sutherland of the systolic pressures of 5,122 students who entered the university in 1922, 1923 and 1924. In 1922, 16.2 per cent. had systolic pressures of 140 or more; in 1923 and 1924 only 9 per cent. showed this degree of hypertension. In the latter group, only 0.5 per cent. had systolic pressures of 160 mm. or more and 0.1 per cent. of 170 mm. or more. Two hundred and nine students out of 389 who in the 1922 and 1923 entrance examinations showed systolic pressures of 140 mm. or more, were reexamined. Only 15 per cent. of these proved to have persistent hypertension. The calculated proportion of the entire group examined who showed secondary hypertension was 1.2 per cent.; transient hypertension, 5.4 per cent.; intermittent hypertension, 2.8 per cent., and persistent hypertension, 1.6 per cent. Nervousness and excitement seem to be most important factors in the production of transient hypertension in young persons. There seems to be some relationship in this group between overweight and persistent hypertension, but none between vital capacity and hypertension.

Pathogenicity of Trichomonas Intestinalis.—Tsuchiya made chemical and clinical analyses in twenty cases in which *Trichomonas hominis* was found in the feces. Its habitat is the large intestine. Whether present in large or small numbers, neither laboratory nor clinical pictures bear evidence conclusive enough to warrant a pathologic diagnosis. Diarrhea, mentioned by many as characteristic of trichomoniasis, had no clinical aspect in this series; instead, constipation was a common occurrence with no diarrheal history. Furthermore, proctoscopic diagnosis emphasized the fact that constipation is a usual accompaniment in these cases. Nervous symptoms and nutritional disturbances manifested in these cases are attributable not to the presence of *Trichomonas hominis*, but to some organic or functional disorder or to constipation secondary to such. The intestinal flora is independent of the presence of *Trichomonas hominis.* The type of intestinal flora does not alter the number of the flagellates.

Primary Vascular Nephritis.—The case reported by Keegan afforded an unusual opportunity by early nephrectomy and later by necropsy to observe the development of a primary vascular nephritis of infectious origin. The operative specimen presented the characteristic pathologic appearance of periarteritis acuta nodosa, and the necropsy specimen, secured two months later, showed the transformation of this lesion into early arteriosclerosis and chronic vascular nephritis. Associated with this renal vascular pathologic condition was a similar lesion of the cystic artery of the gallbladder, the pancreatic artery and the splenic artery.

Duration of Effect of War Gases on Lungs.—Koontz says that in the great majority of dogs gassed at lethal concentrations no pathologic lesions can be demonstrated from two months to a year after recovery. In a minority of instances, permanent lung damage is done; but this damage is not widespread, is generally confined to small areas, and is generally in the form of small patches of organization, thickening of the bronchial walls with loss of elasticity, or occasional closing of the bronchioles by organized exudate. All such damage will ultimately result in fibrous tissue. This small amount of scar tissue can hardly affect the functional efficiency of the lungs. Since the lungs of dogs are more delicate than those of human beings, it is reasonable to conclude that in the vast majority of surviving human patients, who were not gassed so severely and who receive infinitely better care in hospital, all lesions have disappeared within a short while after gassing, and that the small amount of fibrosis remaining in the minority of cases can hardly be a cause of serious disability.

Changes in Heart Rhythm Due to Cheyne-Stokes Respiration.—Resnik and Lathrop report a case of Cheyne-Stokes respiration in which marked changes in cardiac mechanism occurred at the end of the apneic and the beginning of the dyspneic periods. These changes were: displacement of the pacemaker to the auriculoventricular node and the bundle branches of the main stem of the conduction system; depression of auriculoventricular conduction, and conspicuous slowing of impulse formation at the sino-auricular node. These changes were due to vagal stimulation.

Output of Heart in Heart Disease.—The relative output of the heart per beat was calculated by Rabinowitch from the results obtained by the direct determination of the oxygen content of the arterial and venous blood in ten normal persons and in ten persons suffering from various heart lesions, associated with heart failure. Marked and consistent differences were noted between the values in the normal and pathologic cases in all instances. There appeared to be some general agreement between the clinical picture and the laboratory data.

Archives of Neurology and Psychiatry, Chicago

14: 139-288 (Aug.) 1925

*Spongioblastoma Multiforme. Primary Malignant Form of Brain Tumor. J. H. Globus and I. Strauss, New York.—p. 139.
*Medulloblastoma Cerebelli. Midcerebellar Glioma of Childhood. P. Bailey and H. Cushing, Boston.—p. 192.
Electrical Conductivity of Spinal Fluid. J. L. Eckel, Buffalo.—p. 225.
Mechanism of Immunologic Changes in the Cerebrospinal Fluid. J. A. Kolmer, Philadelphia.—p. 233.
Embryogenesis of Human Cerebrospinal Fluid. W. Hughson, Baltimore. —p. 240.
Cerebrospinal Fluid Pressure; Effects of Solutions of Different Concentrations. W. L. Aycock, Boston.—p. 251.

Spongioblastoma Multiforme.—A primary malignant glioblastic tumor of the brain and spinal cord is described by Globus and Strauss for which the name spongioblastoma is suggested. It presents several distinguishing features: (*a*) It is highly cellular. Its cells are embryonal, incompletely differentiated glial elements — the spongioblasts. (*b*) These cells are found in several, transitional forms, such as the giant cell, the pyriform cell and an irregular stellate cell. (*c*) These cells, particularly the giant cells, frequently undergo amitotic division, although mitotic figures are occasionally encountered. They show marked proliferative tendencies. (*d*) The cells, in their grouping, assume various rudimentary formations, alveolar, radial about cystlike structures, rosets and palisadal. (*e*) Extensive necrotic zones, numerous hemorrhagic foci and cystic degenerative changes are common. (*f*) Grossly, the tumor can be recognized by its granular appearance, marked vascularity, which gives it a dark, dirty brownish-red hue, by the extensive necrotic areas, by marked edema of a wide zone of the neighboring tissue and occasionally by the multiplicity of growth centers. This form of cerebral neoplasm is also characterized by a clinical picture which is marked by acute onset, rapid clinical course and early fatal termination. Because of the atypical clinical features which simulate either an inflammatory or vascular disease of the brain, early diagnosis is exceedingly difficult and often impossible. This form of tumor is occasionally associated with tuberous sclerosis, a form of diffuse spongioblastosis. Such neoplasms are often described under various other names and are frequently called gliosarcoma, a term which is considered incorrect. Sixteen cases are reported.

Medulloblastoma Cerebelli.—Twenty-nine centrally placed cerebellar tumors, arising from above the roof of the fourth ventricle and occurring mainly in children, are described by Bailey and Cushing. For these tumors the term medulloblastoma is proposed. Evidence is submitted that they are composed mainly of indifferent cells, analogous to those described by Schaper in the developing cerebellum, and that most of these cells are potential neuroglia. The surgical experiences indicate that the best method of treatment consists of a suboccipital decompression followed by persistent roentgen-ray therapy.

Boston Medical and Surgical Journal

193: 241-282 (Aug. 6) 1925

*Hypertension and Longevity. H. M. Frost, Boston.—p. 241.
*Influence of Position on Vital Capacity and Percentage of Supplementary Air in Normal Persons and Patients with Large Spleens. F. T. Hunter, Boston.—p. 252.
*Chromaffin Cell Tumor of Suprarenal Medulla (Paraganglioma). I. T. Zeckwer, Boston.—p. 254.
*Infectious Granulomata from Abscessed Teeth. E. M. Daland, Boston. —p. 258.
*Typhus Fever; Case. W. Dameshek, Boston.—p. 260.

Hypertension and Longevity.—Among 146,992 examinations for life insurance, Frost says there were 2,568 cases of hypertension, an incidence of 1.74 per cent. Deducting the cases of transient hypertension (6 per cent.), renal disease (16.8 per cent.) and arteriosclerosis (2.5 per cent.), there remain 299 cases (74.7 per cent.) of hypertension without concurrent evidence of causation, which may be termed "essential." Of these, 237 (79 per cent.) presented additional abnormal signs, single and multiple, such as: heart murmur, 66.9 per cent.; rapid pulse (90 +), 38.5 per cent.; hypertrophy of heart, 23.4 per cent., and irregular heart, 9.3 per cent. There was a family history of cardiovascular or renal disease in 28 per cent. The "essential" type of hypertension, in Frost's opinion, represents the initial stages of that cardiovascular degeneration which in time will manifest itself by the signs and symptoms of advanced, probably incurable, hypertensive disease. The only real hope of cure lies in attacking the process at this early stage. This early stage is seen commonly enough by life insurance examiners, but not so often, unfortunately, by the clinician, who is largely concerned with the ill. If these premises are correct, this is a powerful argument in favor of periodic health examination. Systolic hypertension, without other impairment and presumably "essential" in type, is associated with a definite increase in mortality directly proportionate to the degree of pressure elevation; and this mortality is very largely due to the development of circulatory and renal disease.

Influence of Position on Vital Capacity.—Hunter's study of twelve normal persons shows that not only the vital capacity, but also the percentage of supplementary and residual air are greater in the sitting than in the lying position. Measurements of the vital capacity and the percentage of supplementary air were also made in five cases of chronic myelogenous leukemia. The enlarged spleen filled more or less completely the left upper quadrant of the abdomen in four of these patients. In the fifth it was displaced and adherent in the pelvis and extended from the pubes to the umbilicus as a firm rounded tumor. Apparently a large spleen may play a definite rôle in decreasing the percentage of supplementary air, but it does not necessarily cause the low vital capacity which occasionally occurs in myelogenous leukemia.

Chromaffin Cell Tumor of Suprarenal Gland.—The tumor in Zeckwer's case appeared to be a simple tumor of chromaffin cells with no other elements of the suprarenal medulla entering into the tumor process, thus differing from several of those previously reported, in which sympathetic cells participated in the process. The cells were of a quite rapidly growing type, as indicated by their lack of differentiation, irregularity in arrangement, formation of giant bizzare forms and penetration of the cortex. Like all the other reported tumors, it was benign, with no invasion of structures outside of the suprarenal nor production of metastases. The cells, however, had all but penetrated the capsule and their atypical character raises the question whether such a tumor might not become malignant. The association of the tumor with neurofibromatosis is of interest.

Infectious Granulomata from Abscessed Teeth.—Four cases of infectious granulomata are reported by Daland. Three were considered cases of skin cancer. The third patient at one time did have a basal cell carcinoma, but this was removed surgically and what was taken for recurrence was probably an infectious granuloma. All four infections were connected with abscessed teeth and were cured by removal of the teeth.

Endemic Typhus. — Dameshek reports a case typical of typhus fever in the endemic form, known sometimes as Brill's disease. The patient contracted the disease from lice carried over by his parents from Europe.

Colorado Medicine, Denver

22: 259-300 (Aug.) 1925

Head Injuries. C. Gillaspie, Boulder.—p. 262.
Pneumothorax Treatment of Acute Tuberculous Pneumonia. R. J. Groom, Boulder.—p. 264.
Modern Trend in Infant Feeding. G. H. Cattermole, Boulder.—p. 269.
Carcinoma of Stomach; Two Cases. P. R. Farrington, Boulder.—p. 271.
Control of Rickets. H. H. Heuston, Boulder.—p. 274.

Tuberculous Laryngitis from Standpoint of Physician. C. L. La Rue, Boulder.—p. 276.
Acute Abdominal Emergencies. W. W. Reed, Boulder.—p. 281.
Complications of Influenza. W. L. Snair, Louisville.—p. 287.
Case of Vicarious Menstruation Following Artificial Menopause. J. Groom, Boulder.—p. 288.
Interstate Postgraduate Clinic Tour. O. M. Gilbert, Boulder.—p. 289.
Visit to Surgical Clinics and Hospitals of New Orleans. W. W. Reed, Boulder.—p. 291.
New Community Hospital at Boulder. W. C. Huntington, Boulder.—p. 292.

Journal of Cancer Research, Lancaster, Pa.

9: 171-286 (June) 1925

*Regression of Jensen Rat Sarcoma. W. H. Woglom, New York.—p. 171.
Mechanism of Action of Radiation in Treatment of Cancer. K. W. Stenstrom, Buffalo.—p. 190.
*Influence of Certain Limited Diets on Tumor Susceptibility and Growth. K. Sugiura and S. R. Benedict, New York.—p. 204.
Leiomyoma of Pylorus in Black Bear. L. S. N. Walsh, St. Louis.—p. 216.
Cancer of Kidney in Jackal. A. Plaut, New York.—p. 220.
*Experimental Embryomata in Mice. M. T. Burrows, St. Louis.—p. 224.
*Behavior of Coal Tar in Adult and Embryonic Tissue. L. H. Jorstad, St. Louis.—p. 232.
Growth, Hydrogen Ion Concentration, Sugar Fermentation and Surface Tension of Cultures of Pseudomonas Tumefaciens and Pseudomonas Campestris. W. H. Chambers, St. Louis.—p. 254.
*Further Study of Cancer Family. A. S. Warthin, Ann Arbor, Mich.—p. 279.

Regression of Jensen Rat Sarcoma.—Woglom states that comparison of the curves for growing and receding Jensen rat sarcomas shows that the latter fall behind in proliferative energy at about the tenth day. Spontaneous cure seems to be accomplished by the immunity which this sarcoma engenders in its host. Bilateral Jensen sarcomas of the same age pursue a similar course; either both grow or both recede. A knowledge of this fact permits investigation of the early phases of regression. Tumors which are to recede are attacked first at the periphery by some deleterious principle, or condition, associated with the connective tissue of the host. As a consequence, a zone of necrobiosis, followed by what appears to be a secondary fibrosis, sweeps inward from the margin and the neoplasm is thus gradually converted into a fibrous nodule.

Effect of Diet on Tumor Inoculation and Growth.—The susceptibility to tumor inoculation and the growth of such transplantations in rats and mice fed with a diet containing meat, milk or vegetable protein, or an artificial diet free from protein was investigated by Sugiura and Benedict. None of the rations studied influenced the normal transplantability of Flexner-Jobling rat carcinoma or Bashford and Twort mouse carcinoma. The rate of cancerous growth in the hosts was not altered if the diet of the hosts contained over 8 per cent. of protein, irrespective of whether the protein was of animal or plant origin. Ingestion of a protein-free diet caused marked diminution of tumor growth, accompanied by extreme malnutrition of the hosts. The malignant character of cancer cells cannot be influenced by the ingestion of high protein or protein-free diets, or high carbohydrate or low carbohydrate diets. Oral administration of cod liver oil, olive oil, linseed oil and chaulmoogra oil had no influence on the tumor susceptibility and growth.

Experimental Embryoma.—From the observations made by Burrows it is evident that teratomata produced by injecting chopped-up mouse embryos into host mice may persist under the proper conditions, and there seems to be a definite relation between the age of the embryo and the age of the host and this persistence. The younger embryonic tissue persists longer in the hosts than that of older embryos. Hosts which have just passed puberty are more favorable for the persistence of the tumors than younger ones. One animal inoculated with 1⅗ chopped-up embryos when it was 53 days old carried the tumor throughout its life with several pregnancies.

Behavior of Coal Tar in Tissues.—The problem investigated by Jorstad was: How does coal tar produce cancer? It is shown that the primary changes are a movement of fixed tissue cells toward the drops of viscid tar. The tar does not act to stimulate growth but to attract cells to it and away from their blood supply. Growth is a secondary phenomenon which intercedes only when the cells become sufficiently reduced by a pulling away of the endothelial cells of adjacent capillaries. The coal tar acts to attract cells only in that it dissolves the ergusia of the cells. Its action continues until it becomes saturated with this substance. It may then be inactive in the tissue or if conditions are suitable it may migrate into veins which contain little of the ergusia, as any substance containing a surface tension lowering substance may migrate from points in the medium containing a high concentration of the surface tension lowering substance to points of lower concentration of this substance. In the sparsely cellular connective tissue of adults it is very difficult to collect together sufficient cells to produce growth. In the more cellular mesenchyme of embryos more densely cellular masses are easily brought together as they are easily produced in the more cellular epithelial structure of both adults and embryos. This failure to pull cells from the sparsely cellular tissue of adults is not due entirely to the few cells present but to the fact that they become exhausted of their ergusia and degenerate. In a few animals densely cellular masses were accumulated by drops of tar. Tar becomes toxic for the whole animal and leads to cachexia through its ability to thus draw the ergusia to it.

Study of Cancer Family.—The further study made by Warthin of three generations derived from a cancerous great grandfather shows an incidence of 19.18 per cent. of cases of cancer in the 146 individuals comprising the family, and an incidence of 31.81 per cent. of cancer in the eighty-eight adult members of the family. These findings suggest strongly the occurrence of a recessive familial susceptibility to the development of cancer, shown in the males in the gastro-intestinal tract and in the females in the generative organs. The early average cancer age of the affected members, 37.9 years, and the tendency to sudden development and rapid course of the adenocarcinoma types occurring in the family are also notable features.

Journal of Nervous and Mental Diseases, New York

62: 113-224 (Aug.) 1925

*Bismuth Treatment of Cerebrospinal Syphilis. W. A. Smith and L. J. Foster, Ann Arbor, Mich.—p. 113.
Asymmetry of Hemispheres of Brain in Man and Animals. T. Rasdolsky, Petrograd, Russia.—p. 119.
Photographed Lilliputian Hallucinations. E. S. Conklin, Eugene, Ore.—p. 133.
After-Care in Mental Hospital of Erlangen. Kolb, Erlangen, Germany.—p. 141.
Clinical Aspects of Mental Deficiency. I. T. Broadwin, New York.—p. 144.

Bismuth in Cerebrospinal Syphilis.—Smith and Foster believe that bismuth is of value in the treatment of cerebrospinal syphilis. It is especially effective for subjective symptoms. Two cases of multiple sclerosis were treated with bismuth without relief.

Journal of Urology, Baltimore

14: 1-70 (July) 1925

*Studies of Bladder and Ureters. III. Regurgitation of Vesical Contents. R. C. Graves and L. M. Davidoff, Boston.—p. 1.
*Disposal of Ureter in Surgical Excision of Malignant Tumors of Bladder. V. C. Hunt, Rochester, Minn.—p. 19.
Urinary Stasis in Ureteral Obstructions. A. E. Goldstein, Baltimore.—p. 33.
*Sarcoma of Prostate. H. Culver, Chicago.—p. 47.
Prostatectomy: Control of Hemorrhage. F. S. Schoonover, Jr., Fort Worth, Texas.—p. 57.
*Unusual Case of Urethral Calculus. N. P. Rathburn, New York.—p. 59.
Electrode for Use with Young's Punch. Diathermy as Supplement to Prostatic Punch Operation. H. L. Tolson, Cumberland, Md.—p. 63.
Combination Formaldehyd Sterilizer and Cabinet for Storing Sterile Urologic Instruments. R. I. Dourmashkin, New York.—p. 67.

Regurgitation of Vesical Contents.—The belief held by Graves and Davidoff as a result of these studies is that regurgitation from the bladder into the ureters may be accountable for ascending infections of the urinary tract, particularly in cases of vesical neck obstruction.

Malignant Tumors of Bladder.—The frequency with which malignant tumors of the bladder occur following any and all methods of treatment, Hunt says, warrants the frequent reexamination of all patients. Experience has shown that recurrences of even highly malignant growths, when recognized early, respond to treatment. Improvement in results demands standardization of method of treatment, which is possible only through analysis in terms of the degree of malignancy of the case, and the early application of such standardized methods of treatment as have proved of merit.

Sarcoma of Prostate in Boy.—Culver reports a case of sarcoma of the prostate occurring in a boy, aged 12. The boy died as a result of surgical intervention. Culver suggests conservative treatment, such as cystostomy, to be followed by some form of irradiation.

Urethral Calculus.—Following an attack of infantile paralysis at 7 years, Rathburn's patient, aged 23, was very ill with involvement of both extremities, but with what appeared to be complete paralysis of his bladder sphincter. There was no history of any dysuria or obstruction to the flow. He was in perfectly good health otherwise until four days before admission, when he had a severe chill accompanied by pain and burning referred to the urethra, and diminution in the amount of urine. A suprapubic cystotomy was done in the usual manner. The bladder was enormously thickened and edematous, almost necrotic. The bladder contained about 2 ounces of very foul urine. The bladder and wound were drained as usual. Several incisions were made in the infiltrated tissues, evacuating a large amount of foul urine; one incision over the most prominent part of the swelling through the scrotum and downward into the perineum came on the distal end of a large calculus lying loosely in the tissues, the smaller end engaged in an enormously dilated urethra and apparently extending nearly to the bladder neck.

Laryngoscope, St. Louis

35: 501-578 (July) 1925

New Methods and Apparatus for Testing Acuity of Hearing and Relation of Speech and Tuning Fork Methods. H. Fletcher, New York. —p. 501.
Value of Hearing Tests by Audiometer. J. I. Dowling, Albany, N. Y., and R. L. Wegel.—p. 525.
Potentialities of Audiometer. M. A. Goldstein, St. Louis.—p. 538.
Primary Diphtheritic Otitis Media. J. F. Friesen, Los Angeles.—p. 545.
Case of Atresia of Vocal Cords. G. M. Von Poole, Honolulu, T. H.—p. 548.

Medical Journal and Record, New York

122: 121-184 (Aug. 5) 1925

Psychologic Factors in Hyperthyroidism. N. D. C. Lewis, Washington, D. C.—p. 121.
Carcinoma of Sigmoid Colon Rupturing into Abdominal Wall. W. C. Menninger, Topeka, Kan., and H. G. Holder, San Diego, Calif.—p. 126.
Winter's Mastoids. C. H. Smith, New York.—p. 128.
*Prolapse of Female Urethra. A. Jacoby, New York.—p. 131.
Cultural Methods in Treatment of Chronic Suppurations, Particularly of Bones. Max Thoreck, Chicago.—p. 132.
Interrelationship of Physician and Dentist. M. L. Rhein, New York.—p. 135.
*Ultimate Cause of Most Apoplexies. T. F. Reilly, New York.—p. 140.
Tuberculosis of Hip in Children. H. E. Coe, Seattle, Wash.—p. 145.
Pyloric Obstruction in Infants with Nervous Heredity. R. L. Pitfield, Philadelphia.—p. 148.
Constipation in Infancy and Childhood. H. S. Snyderman, Philadelphia. —p. 150.
Renal, Ureteral and Urethral Calculi; Case. S. Wallenstein, Baltimore. —p. 152.
Treatment of Tuberculous Joints in Children. P. C. Colonna, New York.—p. 155.
Anemia Infantum Pseudoleukemia. S. A. Blauner, New York.—p. 157.
Present Status of Control of Scarlet Fever. R. O. Clock, Pearl River, N. Y.—p. 158.

Prolapse of Female Urethra.—Jacoby's case occurred in a girl, aged 7. The child stated that she was kicked in the vulvar region two weeks before any symptoms were noted. On inspection of the vulvar region, a deeply congested mass was visible occupying the whole space between the labia, overlapping and hiding the hymen. This mass had an irregular longitudinal slit in the center, was slightly eroded at one portion, and was exquisitely sensitive, bleeding readily on being touched with a cotton tipped applicator. Attempts at reduction failed. Operation was performed under general anesthesia. The operation consisted of excising the prolapsed portion and approximating the cut edges by *interrupted* sutures.

Influenza Causes Apoplexy.—Reilly has found that the signs and symptoms of influenza were almost always present in the mouth and throat of a patient suffering from the brain lesions of apoplexy. Injection of the anterior pillar of the fauces, with injection of the external margin of the ocular conjunctiva and increased temperature are the most constant. Reilly theorizes as follows: During the struggle between the disease and the individual, the blood is surcharged with organisms that are constantly being destroyed. It is quite a reasonable assumption, that finding a diseased vessel, such organisms will lodge there, and that an already degenerated vessel has just such an affinity for them, and particularly is there a chemotactic attraction for them in the lenticulostriate artery. Whether the primary cause of the faulty vessel is arteriosclerotic or syphilitic, there is the same frequency of accompanying head colds.

Medicine, Baltimore

4: 251-343 (Aug.) 1925

Etiology of Scarlet Fever. A. R. Dochez, New York.—p. 251.
Hydrogen Ion Concentration of Blood in Health and Disease. J. H. Auston, Pittsburgh, and G. E. Cullen, Nashville, Tenn.—p. 275.

Military Surgeon, Washington, D. C.

57: 113-224 (Aug.) 1925

Bronchomycoses. A. Castellani.—p. 113.
*Convenient Dressing for Fractured Ribs. J. R. Knowles.—p. 134.
Complement Fixation Tests for Syphilis; Modification of Noguchi Test. C. H. Franklin.—p. 136.
Industrial Mobilization. J. D. Fife.—p. 145.
Present Status of Medical Reserve Corps. D. F. Duval.—p. 153.
*Method for Rapid Examination of Urine at C. M. T. C. and Mobilization Camps. C. W. Field and P. E. McNabb.—p. 158.
Random Notes on Medical Department. F. Conner.—p. 163.
Study of "Cured" Cases of Syphilis in U. S. Army. S. C. Schwartz. —p. 169.
Word Association Test on Hypomanic. I. F. Peak.—p. 181.

Dressing for Fractured Ribs.—In cases of fracture of one or more of the lower ribs and, when the skin is tender and easily irritated by strapping, Knowles applied a Jock strap to be worn upside down. The belly band of the Jock strap must be a good wide one, the wider the better, as long as it does not wrinkle at any point. The strap does not irritate the skin, no matter how much the patient perspires, and, at the same time, holds the rib or ribs in a firm snug position.

Rapid Examination of Urine.—As a result of experience gained in 6,000 urine examinations made at training camps, Field and McNabb have adopted the sulphosalicylic acid test for the initial examination where speed is essential, and the nitric acid test for reexaminations where it is desirable quickly to eliminate from observation all persons who do not show a significant amount of albumin. Approximately 20 per cent. of urines were positive for albumin with sulphosalicylic acid (or with heat and acetic acid) when specimens were collected at the time of the admission physical examination, and approximately 1 per cent. were positive with nitric acid when specimens were collected at reveille.

Nebraska State Medical Journal, Norfolk

10: 281-324 (Aug.) 1925

Athletics and Competitive Athletics Versus Sound Physiologic Principles. I. C. Philbrick.—p. 284.
Modern Aspects of Nutrition. VI. Faulty Food and Bodily Strength. V. E. Levine, Omaha.—p. 290.
Angina Pectoris. W. W. Arrasmith, Grand Island.—p. 294.
Choice of Operation in Peptic Ulcer. L. D. McGuire, Omaha.—p. 297.
Artificial Pneumothorax in Medicine. M. C. Howard, Omaha.—p. 302.
Hemophilia. A. A. Conrad, Crete.—p. 305.
Atypical Tabes Dorsalis: Diagnosis. A. E. Bennett, Omaha.—p. 310.
Progress in Obstetrics. W. C. Becker, Lincoln.—p. 315.

New Jersey Medical Society Journal, Orange

22: 279-322 (Aug.) 1925

Radium Treatment of Carcinoma of Cervix. W. P. Glendon, Bridgeton. —p. 279.
Case of Chondroma of Humerus Necessitating Interscapulothoracic Amputation. W. Spickers, Paterson.—p. 283.
Wood Alcohol Poisoning; Case. C. L. Andrews, Atlantic City.—p. 288.
Meningeal Hemorrhages in New-Born. A. Gordon, Philadelphia.—p. 294.

Rhode Island Medical Journal, Providence

8: 123-140 (Aug.) 1925

Aberrant Thyroid; Two Cases. F. E. McEvoy, Providence.—p. 123.
Acute Appendicitis Occurring in Course of Tubercular Perionitis. A. Converse, Providence.—p. 125.
Tuberculosis of Mesenteric Glands; Associated with Orchitis. R. C. Bates, Providence.—p. 138.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Indian Medical Gazette, Calcutta

60: 301-352 (July) 1925

Cholera in Bengal. A. B. Fry.—p. 301.
*Acquired Diseases of Heart and Aorta in Bengal. U. P. Basu.—p. 307.
*Efficacy of Neembattis in Destruction of Rats and Rat Fleas. C. D. Tiwari and R. B. Lal.—p. 310.
Litholapaxy. R. W. Anthony.—p. 311.
Cellulitis of the Orbit. R. E. Wright and C. G. Taylor.—p. 312.
Art of Indian Chiropodist. R. L. Spittel.—p. 316.
Canine Leishmaniasis in Bombay. R. Row.—p. 317.
*Treatment of Typhus. G. R. McRobert.—p. 318.
*Cellular Elements in Cholera Stools; Relative Importance in Diagnosis. G. C. Maitra, L. B. G. Ganguli and J. B. Basu.—p. 321.
Cultivation of Endameba from Monkey (Macacus Rhesus). M. D. Gupta. —p. 323.
Hemorrhagic Encephalitis After Novarsenobillon Administration; Two Cases. K. Sen.—p. 323.
Rightsided Pleural Effusion Extending into Epigastrium. U. N. Sen. —p. 324.
Choleraic Dysentery. P. K. Kurup.—p. 325.
Kala-Azar with Transposition of Viscera; Case. K. N. Chatterjee.—p. 326.
Aims of Medical Man. C. A. Bentley.—p. 332.

Acquired Heart Disease in Bengal.—Basu analyzes 446 cases of heart disease, so called, seen in Bengal. The cases were classified as follows: pericarditis, 7 cases; arthythmias, 109 cases; angina, 40 cases; dilatation, forty-seven cases; degeneration of the myocardium as the result of heat, poor diet and infections like cholera, dysentery, malaria and kala-azar, 127 cases; acute endocarditis, 28 cases; chronic endocarditis, 35 cases; malignant endocarditis, 43 cases; bradycardia due to high arterial tension, 4 cases.

Neembattis for Destruction of Rats.—A standard neembatti as issued from the Punjab Plague Equipment Depot, Jullundur, is prepared as follows: Potassium chlorate, 2 drams; potassium nitrate, 1½ drams, and sulphur, 2 drams, are powdered together and mixed with 5 drams of oil (any kind, Taramira mustard, castor oil, etc.) to form a paste to which 1 dram of chilli powder (red pepper) and a handful of crushed dried neem leaves (*Azadirachta-indica*) are added. A wick of about 9 inches, made of thick cloth (khaddar) is soaked in a saturated solution of potassium chlorate. This paste is put over the wick leaving exposed about an inch of one end. The wick is then encased in cloth and a piece of thick paper wrapped over it. To use a neembatti, all openings, except one, of the burrow are closed; a neembatti is then ignited and introduced into the open hole which is then similarly closed. Fumigation with neembattis, in the way described, kills the rats and the fleas on the rats in the burrows in the fields in five minutes.

Treatment of Typhus.—In McRobert's experience the most valuable therapeutic measure in typhus fever appears to be the administration of physiologic sodium chlorid solution rectally, subcutaneously and intravenously. Specific serum therapy may be of value, but McRobert's experience with Nicolle's serum has not been encouraging. McRoberts has found that profound mental after-effects are of not infrequent occurrence. Loss of memory, nerve deafness and deficient emotional control are quite commonly found after typhus fever.

Cellular Elements in Cholera Stools.—In a total of 495 cholera cases diagnosed bacteriologically, comma vibrios were found by Maitra, Ganguli and Basu microscopically in 84 per cent. of the stool films. In a total of 496 cholera cases, 92 per cent. showed definite concentration of blood. In 6 per cent. of them the concentration was indefinite and in 2 per cent. there was no concentration at all. Cytologic elements in the cholera stool are constant and characteristic and can be utilized as a reliable index in 98 per cent. of cases.

Journal of Cancer, Dublin

11: 1-48 (July) 1925

Cancer of Uterus. A. C. Magian.—p. 1.
Isolation of Glover Cancer Micro-Organism from Blood and Tissue of
Carcinomatous Cases. J. Loudon and J. M. McCormack.—p. 19.
Roentgen-Ray Treatment of Uterine Cancer. Wintz.—p. 33.

Journal of Physiology, London

60: 109-236 (July) 1925

*Effect on Muscle Contraction of Sympathetic Stimulation and of Various Modifications of Conditions. H. Wastl.—p. 109.
Effect of Changes in Venous Blood Pressure on Rate of Flow Through and Gaseous Metabolism of Kidney. E. W. H. Cruickshank and K. Takeuchi.—p. 120.
Relation of Thyroid to Action of Insulin. J. H. Burns and H. P. Marks.—p. 131.
*Conditions of Respiration with the Chest Open. K. Takeuchi.—p. 142.
*Effect of Epinephrin on Respiratory Center. Y. Kuno.—p. 148.
*Production of Anhydremia with Insulin. D. L. Drabkin.—p. 156.
Hem in Nature. M. L. Anson and A. E. Mirsky.—p. 162.
Pulmonary Circulation in the Heart-Lung Preparation. G. V. Anrep and E. Bulatao.—p. 175.
*Relation of Ovarian Function to Menstruation. W. Shaw.—p. 192.
*Relation Between Size of Heart and Oxygen Content of the Arterial Blood. K. Takeuchi.—p. 208.
Double Innervation of M. Gastrocnemius. S. de Boer.—p. 215.
*Helicorubin; Its Relation to Hemoglobin. M. L. Anson and A. E. Mirsky.—p. 221.
*Effect of Pituitary Extract on Secretion and Composition of Urine. R. L. Stehle and W. Bourne.—p. 229.

Effect of Sympathetic on Muscle.—Experiments were made by Wastl to determine whether sympathetic nerve stimulation increased the fatigue contractions of striated muscle but no evidence was found that the sympathetic affects striated muscle, except by modifying the circulation.

Apparatus for Artificial Respiration.—An apparatus is described by Takeuchi by which artificial respiration can be maintained for nine hours or more with the chest open without producing emphysema, and which does not cause more than a trivial decrease in the oxygen saturation of the arterial blood.

Effect of Epinephrin on Respiratory Center.—Kuno states that epinephrin does not cause apnea by constricting the cerebral vessels, but partly by increasing the cerebral blood flow and washing out carbon dioxid, and partly by a direct action on the nerve cells of the respiratory center.

Hypoglycemia Cause of Anhydremia.—Sudden, profound hypoglycemia—the virtual purging of the blood of its sugar—is thought by Drabkin to be the primary cause of anhydremia following on the administration of insulin.

Relation of Ovarian Function to Menstruation.—The histology of the endometrium, the changes in the ovaries in the menstrual cycle, and the relation between the two are discussed by Shaw. The premenstrual changes are first observed about the fourteenth day of the cycle, the cycle being regarded as commencing on the first day of the menstrual discharge. At the end of the menstrual cycle the premenstrual endometrium resembles the decidua of early pregnancy. During menstruation a degeneration of the hyperplastic endometrium occurs which results in the shedding of the superficial portions of the latter. Ovulation in the human female takes place between the thirteenth and seventeenth days of the cycle. The corpus luteum attains its state of maturity on the nineteenth day and persists in its mature form until about the twenty-seventh day. On the twenty-eight day and during menstruation the corpus luteum is degenerate. If pregnancy occurs the corpus luteum persists in its state of maturity until about the twelfth week and the premenstrual changes of the endometrium become better developed to form the decidua. Evidence is brought forward to suggest that the corpus luteum is responsible for the production of the premenstrual changes and of the decidua if pregnancy occurs.

Relation Between Size of Heart and Oxygen Breathed.—Takeuchi found that the reduction of oxygen in the air breathed by a cat produces immediate enlargement of the heart. The readministration produces immediate reduction.

Helicorubin.—The similarities and differences between ordinary hemochromogen and helicorubin are explained by Anson and Mirsky by showing that they contain the same hem but different nitrogen compounds. The nitrogen compound of helicorubin has the greatest affinity for them.

Effect of Pituitary Extract on Urine.—The experiments described by Stehle and Bourne appear to justify the following hypothesis concerning the action of the posterior lobe of the pituitary gland on the secretion of urine: The effects of the active constituent on the secretion of water and chlorid are similar. When either, or both, are being secreted slowly, pituitary extract causes an increase in the rate or rates; when either or both are being excreted rapidly, it has the opposite effect. Consequently, it may be assumed that the pituitary gland has a definite function in determining the secretion or conservation of water and chlorids, and it may well be that this control is exerted over other constituents of the urine as well. Apparently chlorid and phosphate excretion may be affected in opposite direction by pituitary extract, which is in harmony with the idea of its exerting a general regulatory action. The facts point in the direction of pituitary extract having a general stimulatory effect on secretion under the conditions existing in these experiments.

Journal of Tropical Medicine and Hygiene, London

28: 257-276 (July 15) 1925

*Mixed Mycotic Infections of Bronchi. Mixed Monilia Anaeromyces Infections. A. Castellani, M. Douglas and E. T. Thompson.—p. 257.

Treatment of Cholera and Its Complications. S. K. Ghosh-Dastidar.—p. 261.

Mixed Mycotic Infections of Bronchi.—From observations and researches carried out during the last four years, Castellani, Douglas and Thompson have come to the conclusion that a true mixed monilia plus anaeromyces infection exists, in which each of the two organisms play an etiologic rôle. They base their opinion not on the fact that in these cases both organisms are found in the sputum, as one of them might play only a saphrophytic rôle, but principally on the fact that in such cases the specific treatment for simple bronchomoniliasis (iodids, creosote) and the specific treatment for anaeromyces (anaeromyces vaccine) given alone are not sufficient to induce a cure, while this is obtained by combining the two treatments.

Lancet, London

2: 213-262 (Aug. 1) 1925

Personality, Magic and Medicine. G. M. Robertson.—p. 213.

Disorders of Motility and of Muscle Tone. III. S. A. K. Wilson.—p. 215.

*Acute Intestinal Obstruction. R. L. Williams.—p. 219.

*Vasoneurosis Caused by Toxic Idiopathy to Milk. H. M. Walker.—p. 220.

*Loose Body in Tunica Vaginalis. A. E. Sawday.—p. 220.

2: 263-312 (Aug. 8) 1925

*Relation of Paralysis Agitans to Parkinsonian Syndrome of Epidemic Encephalitis. R. Cruchet.—p. 263.

*Disorders of Motility and of Muscle Tone. IV. S. A. K. Wilson.—p. 268.

*Chronic Upper Abdominal Lesions. G. P. B. Huddy.—p. 276.

Value of Lipiodol in Diagnosis of Bronchiectasis. L. S. T. Burrell and S. Melville.—p. 278.

Treatment of Pseudocoxalgia. G. Perkins.—p. 295.

Acute Intestinal Obstruction Caused by Retained Drainage Tube.—Williams reports a case of intestinal obstruction occurring in a man on whom an appendectomy had been performed twelve years previously. A diagnosis of acute intestinal obstruction, due probably to adhesions or bands following the original operation for appendicitis, was arrived at, and an immediate operation was performed. The region of the old appendicectomy was first explored, but beyond some adhesions between the scar and the great omentum nothing abnormal was discovered. Passing down into the left side of the pelvis from the right iliac fossa a tubular structure not unlike a calcified internal iliac artery was felt. As there was no pulsation it was very cautiously dissected out from its sheath of peritoneum and fibrous tissue, and was found to be a piece of ordinary red rubber drainage tube. On investigation of the pelvis it was discovered that the distal 4 cm. of the tube had passed through an aperture in the lowest part of the root of the pelvic mesocolon. Through this aperture had passed also about 3 feet of small intestine which had become strangulated. The drainage tube measured 15 cm. in length and 1 cm. in diameter, and was in a perfect state of preservation. The remarkable feature of this case is that although the patient had this large drainage tube in his abdominal cavity during the twelve and one-half years that elapsed between the original operation for appendicitis and the operation for acute obstruction, he was nevertheless well, free from abdominal symptoms, and able to work.

Vasoneurosis Caused by Sensitiveness to Milk.—Walker's case shows a general disturbance of the vascular innervation caused by sensitiveness to a foreign protein. By leaving cow's milk out of the diet there have been no further attacks of urticaria, but the sneezing persisted, although not so frequently as before. The association of urticaria, angioneurotic edema, vasomotor rhinitis, and mucous colitis at the same time and in the same case is interesting. It seems probable in this case that the colitis was caused by the same influences which, acting on the skin, had caused the urticaria and, on the nasal mucous membrane, the rhinitis. There is no family history of asthma or vasoneurosis.

Loose Body in Tunica Vaginalis.—The nature of the loose body in Sawday's case was not determined. It was about the size of a pea and might have been a detached cyst of the epididymis or a cystic degeneration of a hydatid of Morgagni or of the hydatid of the epididymis.

Relation of Paralysis Agitans to Parkinsonian Syndrome of Epidemic Encephalitis.—The bradykinetic syndrome in its elementary form is discussed by Cruchet and he shows that the additions found in the parkinsonian and postencephalitic types mark them out as original diseases, perfectly differentiated. From what is known of the diffusion of the encephalitic virus over nervous centers, it is easy to understand that it may give birth in certain cases to the true parkinsonian type—2 or 3 per cent. in Couchet's statistics. But this shows how rare the syndrome is. The association of the parkinsonian and postencephalitic type has been seen in a few cases. But it is only an associated form, which must necessarily be divided into two essential types. That is why, after all, the parkinsonian and postencephalitic bradykinesia must be considered separately.

Disorders of Motility and of Muscle Tone.—Some of the points made by Wilson are: (1) It is *a priori* highly improbable, and contrary to the dictates of common sense, that motor phenomena so conspicuously diverse and of such varying complexity as myoclonus, tremor, athetosis, chorea, tics, bradykinesis, torsion spasm, micrographia, and palilalia should one and all be set down to disorder of striatal function. (2) Consideration of the intrinsic clinical features of some of the motor disorders put down to striatal dysfunction proves that under no circumstances can they be conceived of as resulting from defect or destruction of identical or similar mechanisms, for while some are physiologically of a high order, others are of a low. Wilson's clinical studies have impressed him with the belief that striatal symptomatology and striatal function must be comparatively simple; and that the unwieldy and top-heavy symptom-complex which has gradually come to be erected on the ganglion must be stripped of nonessentials. The corpus striatum is a body one of whose functions is tone control, for in its diseased state tone overdevelops in the skeletal musculature generally; another of its functions is that of inhibiting the physiologically lower function of neuromuscular rhythm, for when it degenerates tremor is prone to make its appearance. In both respects its function is unique and exclusive of that of other centers of approximately the same order.

Familial Tendency in Chronic Upper Abdominal Lesions.—The lesions present in the 311 cases analyzed by Huddy were of four types: chronic gastric ulcer (simple), 95; chronic duodenal ulcer, 129; carcinoma of the stomach, 30; cholecystitis, 57. In every case the diagnosis was definitely confirmed at operation, and, where necessary, by further pathologic investigation. An attempt was made to estimate the existence of a familial tendency in these cases and his findings strongly support the existence of such a tendency.

Practitioner, London

115: 97-164 (Aug.) 1925

Treatment of Insomnia. M. Craig.—p. 97.

Practical Methods of Ultraviolet Rays Dosage. L. Hill and A. Eidinow.—p. 102.

Some Results of Light Therapy. H. C. Semon and M. E. Ormsby.—p. 112.

Artificial Sunlight Treatment. W. J. O'Donovan.—p. 119.

Treatment of Patients Before and After Abdominal Operations. H. J. Paterson.—p. 128.

Fibrositis. J. E. R. McDonagh.—p. 139.

Tonsillectomy Technic by Propulsion and Avulsion. J. B. Horgan.—p. 145.

Operative Treatment of Diseased Tonsils and Adenoids. J. R. Griffith.—p. 150.

South African Medical Journal, Cape Town

23: 269-292 (July 11) 1925

Asthma: An Allergic Reaction. W. Campbell.—p. 270.
Nasal Factor in Causation of Asthma. C. E. Jones-Phillipson.—p. 276.
Etiology and Treatment of Asthma. P. W. J. Keet.—p. 277.
Present-Day Conception of Asthma. D. P. Marais.—p. 279.

Archives de Médecine des Enfants, Paris

28: 401-464 (July) 1925

The Federal Child-Welfare Service at Bahia. M. Gesteira.—p. 401.
*Meningitis of Ascarid Origin. E. Abel and P. Brenas.—p. 426.
Epidemic Encephalitis in Four Months' Infant. Voudouris.—p. 433.
Immunity of Young Infants to Measles. J. Comby.—p. 436.

Meningitis of Ascarid Origin.—Abel and Brenas report from Nancy the case of a boy, aged 7, who developed tetany and grave meningitis, all of which abruptly subsided after expulsion of twelve ascarids under two doses of santonin. The diagnosis at first had been tetanus notwithstanding the initial coma. The blood findings did not seem to indicate toxic action. Both tetanus and meningococcus antiserums had been injected, and a fixation abscess induced, before the passage of an ascarid gave the clue the sixth day of the nervous manifestations. They had been preceded by four days of headache and vomiting at home, with one ascarid in the vomit and two in the stools.

Comptes Rendus de la Société de Biologie, Paris

93: *149-216 (June 26) 1925. Partial Index*

*Malaria and Opsonized Quinin. Belonovsky and Balkovsky.—p. 152.
Double Function of Muscle Fibers. J. R. Pereira.—p. 154.
Action of Albuminoids on Chondriosomes. A. Giroud.—p. 158.
*Rôle of the Medulla in Epinephrin Secretion. A. Tournade et al.—p. 160.
*Filtrable Forms of Tubercle Bacillus. F. Arloing and A. Dufourt.—p. 165.
Immunization of Cattle by Toxin of Symptomatic Anthrax. J. Basset.—p. 168.
*Study of the Blood. Chalier et al.—p. 173.
*Staining of Muscle Fibers. M. Favre.—p. 175.
*Iodin in Treatment of Dyshidrosis. M. Favre.—p. 176.
*Cholesterol in Tuberculous Blood. Jullien and Martin-Rosset.—p. 177.
*Ways of Sensitization. Pierret and Gernez.—p. 179.
*Action on Blood Platelets and Leukocytes. Backman et al.—p. 183.
*Lesions from Mushroom Poisoning. Backman and Beskow.—p. 193.
*Concomitant Action of Organ Extracts and Epinephrin. Berggren.—p. 197.
*Guanidin and Vasomotor Action of Epinephrin. Brodd.—p. 203.
*Experimental Habronema Granuloma in Lung. C. Magarinos Torres.—p. 214.

Opsonized Quinin in Treatment of Malaria.—The vein was punctured during the malarial paroxysms, with a syringe containing 2 c.c. of a 50 per cent. solution of quinin, with or without 1 c.c. of spleen extract. The needle was left in the vein for two or three minutes, mixing the contents gently with blood, and then the contents were reinjected into the vein. In twenty grave cases with tertian or quartan paroxysms, three such injections were followed by sudden defervescence, rapid reduction of the size of the spleen, disappearance of the plasmodia, and recovery. Ordinary quinin in these cases was of no avail. No complications followed the injections of this "opsonized" quinin.

Stimulant Action of Medulla Oblongata on Epinephrin Secretion.—Tournade, Chabrol and Wagner's experiments on dogs in artificial symbiosis demonstrated that exposure of the medulla to the action of cocain induced cardiovascular phenomena testifying to an impairment of epinephrin secretion.

Lesions Induced by the Filtrable Tuberculosis Virus.—Arloing and Dufourt found that the lesions from inoculation of the filtrable virus are different from those caused by tubercle bacilli. No visceral or local lesions were manifest. The infection spread exclusively by way of the lymphatics, without causing cheesy degeneration of the glands. The structure and staining properties of the bacilli present in the lymphatics closely resembled those of the usual tubercle bacilli.

Relations Between the Refraction Index, the Viscosity and the Protein Content of the Blood.—The findings in Chalier, Boulud and Chevallier's research in fifty-three persons on the total of proteins in the blood serum, as shown by the method of weighing, agreed with that determined with the refraction index. Consequently, they say, the latter method may be clinically utilized. No connection could be established between the viscosity of the blood and the protein content. Estimation of the viscosity seems to indicate the nature of the proteins rather than their quantity, since pronounced viscosity frequently coexists with a low protein content.

Technic for Staining Smooth Muscle Fibers.—Favre gives a detailed description of his method, which applies not only to normal muscles but also in pathologic conditions, especially in cases of uterine fibromyoma.

Iodin in Treatment of Suppurating Dyshidrosis.—Favre used applications of tincture of iodin (20 c.c. of iodin and 10 c.c. of alcohol) with subsequent dressings of linimentum calcis in cases of extensive cheiropompholyx with large vesicles, tending to suppuration. Under this treatment the eruption, as well as the associated functional disturbances of the extremities, rapidly improved. The efficacy of iodin seems to confirm the parasitic origin of the disease.

The Cholesterol of the Blood in the Tuberculous.—Measurement of the cholesterol in the blood serum of twenty-four patients with different forms of tuberculosis showed that the amount is not modified under the influence of the infection.

Anaphylactic Sensitization.—Pierret and Gernez' research on guinea-pigs with horse serum proved that anaphylactic sensitization may be induced with intradermal injections as well as with epidermic and subcutaneous applications. With the latter, the sensitization seemed to be more complete.

Action of Certain Salts on Blood Platelets and Leukocytes.—Backman and his co-workers noted that intravenous injections of calcium chlorid or of sodium citrate induced in rabbits a transient reduction of the number of blood platelets. While with calcium the number of leukocytes increased, there was a considerable decrease under sodium citrate. Injections of physiologic salt solution did not affect the number of blood platelets or of leukocytes in the animal. Under epinephrin the platelets increased in numbers, while the number of leukocytes was unchanged or increased. With histamin the platelets increased in numbers; with nicotin they decreased. Acetylcholin increased the number of platelets, but did not modify that of the leukocytes. Even toxic doses of pilocarpin did not influence the platelets, and only slightly increased the number of leukocytes. Atropin caused a marked diminution of the number of platelets, and increase of leukocytes.

Fatal Lesions in Mushroom Poisoning.—Backman and Beskow conclude from experimental poisoning of rabbits with fly agaric that death in these cases is due to changes in the bone marrow.

Enhancement of the Action of Epinephrin by Certain Organ Extracts.—An extract of rabbit lymph glands seemed to enhance the constrictor action of epinephrin on the uterus; in the intestine, the extract increased simultaneously the constrictor and the inhibiting action of epinephrin. The same occurred with muscle and blood extracts. The action was probably due to certain chemical substances contained in the tissues, and only slightly to the amino-acids present.

Effect of Guanidin Derivatives on the Vasomotor Action of Epinephrin.—Brodd found that creatin and arginin increase the vasoconstrictor property of epinephrin, although dilating the vessels. This may be explained by the action of these substances on the motor nerve terminals of the sympathetic. Creatinin seemed to lack this property.

Tropism of Habronema for the Lungs.—Magarinos Torres observed that larvae of habronema, applied to a wound in guinea-pigs, migrated to the lung, forming there a granuloma. He points to this experience as confirming the specific affinity of the worm for the lung. It reaches the lung by way of the blood vessels as well as by the mouth and nose.

Journal de Chirurgie, Paris

25: *633-772 (June) 1925.*

*Reconstruction of the Esophagus. J. Jankovskis.—p. 633.
*Sympathectomy in Gynecology. G. Cotte and M. Dechaume.—p. 653.

Total Esophagoplasty.—Jankovskis reports from Riga, with illustrations, four cases in which the entire esophagus was reconstructed, with excellent functional results. In a fifth case of lye stenosis the patient succumbed to pleural empyema after mere esophagostomy. The patients were all young adults, and the new subcutaneous esophagus was made from a 40 cm. segment of the jejunum. He enclosed it in a skin tube extending above and below the suture points. The whole procedure took about a year and a half, but it restored the earning capacity more or less completely and the enjoyment of life.

Gynecologic Periarterial Sympathectomy and Resection of Presacral Nerve.—Cotte and Dechaume refer to decortication of the hypogastric artery or section of the presacral nerve in treatment of rebellious dysmenorrhea or pelvic neuralgia, vaginismus, hypoplasia of the uterus of probably mild infectious origin, clitoris crises and metrorrhagia and leukorrhea of ovarian origin in young girls. In twenty of their thirty-six cases the ovaries were partially resected at the same time, and the uterus was removed in two. To date there has been no recurrence of the disturbances for which the operations were done. They have now abandoned the operation on the artery, and for the last ten months have resected the presacral nerve through a laparotomy as even more effectual, while the technic is simple and rapid. The prevertebral sympathetic gangliated cord continues its downward course along the inner side of the last lumbar vertebra, forming what they call the presacral nerve, often visible through the peritoneum. The resection is done a little above the promontory, before the nerve divides.

Presse Médicale, Paris

33: 1009-1024 (July 29) 1925

*Achievements of the Paris Physiology Laboratory. C. Richet.—p. 1009.
To Close a Gastro-Enterostomy. V. Pauchet.—p. 1012.
*Experimental Cancer of the Gallbladder. J. Rouillard.—p. 1014.

The Scientific Work of Charles Richet.—Richet summarized in his farewell lecture his work as chief of the laboratory of physiology at the Paris Medical School for nearly half a century. He described how various discoveries were made with the aid of his co-workers. In 1884 he demonstrated that "thermic polypnea" is a phenomenon for protection of the organism against overheating, and that the panting may be of central as well as of reflex origin. Subsequently he proved that a fit of shivering is also a phenomenon for heat regulation, and it can be central or reflex in origin. He recalled that he was the first to establish the principle of serotherapy, reporting in 1888 that the injection of blood from an immunized animal confers immunity on a nonimmunized animal. The first therapeutic injection of an immune serum (from tuberculized dogs), in man, was made by him in 1890. In 1900 he suggested the treatment of tuberculosis with raw meat juice. Observation of 300 tuberculous ex-soldiers treated with the juice of desiccated meat in 1916 confirmed, he said, its efficacy, if it is used in the beginning of the disease and in adequate doses. He styled this zomotherapy the specific organotherapy for the muscles, the ancestral tissues assimilating raw juice better than the cooked. He mentioned further his research on lactic fermentation, also on the persistence of acquired properties in organisms. Speaking of his discovery of anaphylaxis in 1902, he traced it to his experiments on the physalia, marine organisms, made on the yacht of the prince of Monaco, and his experiments on sea anemones. He remarked that the Index Catalogue, as early as 1922, had listed 3,500 articles on the subject of "Anaphylaxis."

Experimental Cancer of the Gallbladder.—Combining different statistics, Rouillard asserts that 10 per cent. of persons harbor gallstones, while 5 per cent. of this group develop cancer in the gallbladder. Gallstones seem to be always found with cancer of the gallbladder. He refers to Leitch's experiments in which calculi, introduced into the gallbladder of guinea-pigs, were followed by formation of a cancer. Certain of the findings appeared to be similar to those in cancer of the gallbladder in man. The chronic irritation of the mucosa, caused by the calculi, may create characteristic lesions of the precancer phase, with consecutive epithelioma. "Cancer does not start in sound tissue."

33: 1025-1040 (Aug. 1) 1925

*Consequences of Gastritis. F. Ramond.—p. 1025.
*Spasm of the Central Artery of the Retina. C. Abadie.—p. 1026.
Radiology in Pulmonary Tuberculosis. L. Dioclès.—p. 1029.

Chronic Gastritis in Pathogenesis of Ulcer and Cancer of the Stomach.—Ramond believes that ulcers as well as cancer of the stomach develop from chronic gastritis, with defective emptying of the stomach. Prolonged sojourn of the chyme in the stomach, and subsequent growth of the bacteria retained in the gastric crypts is the first phase of the pathologic process. The local infection provokes a reaction of the mesodermal cells, with metaplasia. Treatment of chronic gastritis should aim to restore normal conditions of evacuation.

Spasms of the Central Artery of the Retina.—On the basis of two recorded observations and one personal, Abadie asserts that spasms of the central artery of the retina are not rare. The affection is often mistaken for embolism of the artery when restricted to one eye. With spasm of the artery the fundus of the eye is not modified; with spasms of long standing, atrophy of the optic nerve with loss of sight may occur. But the perception of light still persists with the spastic or essential atrophy. While a bilateral spastic atrophy may be easily differentiated from the atrophy with neuritis or atrophy of intracranial origin, the differentiation from tabetic atrophy may be more complicated. The sudden appearance of the affection, and the persistence of the reflex to light may indicate the spastic origin of the atrophy. An immediate and remarkable improvement may be obtained with daily intra-orbital injections of 20 drops of a solution containing 0.001 gm. of atropin. The injections may be occasionally repeated, and atropin be given by the mouth, three times a day, to a daily dose of 0.001 gm. In a case observed, the improvement has persisted for a year. This treatment is also efficient in atrophy of the optic nerve from quinin poisoning, since the atrophy here is also of a spastic nature. Spasm of the central artery of the retina is closely related to the arterial spasms in Raynaud's disease, and to the spasms of the coronary arteries in angina pectoris.

Schweizerische medizinische Wochenschrift, Basel

55: 681-704 (July 23) 1925

Emboli in the Skin After Injection of Bismuth. W. Brack.—p. 681.
*The Disturbances in Calcification in Rickets. E. Glanzmann.—p. 683.
Dangers from Prolonged Immobilization of Joints. Debrunner.—p. 692.
Hay Fever with Pneumonia and Phlebitis. A. Goenner.—p. 696.

Experimental Studies in Rickets.—Glanzmann kept rats on McCollum's diet which regularly produces rickets. On these rats he tested the antirachitic action of certain foods. He believes that the most important factor in the pathogenesis of rickets is the ratio between the calcium and the inorganic phosphorus in the blood, which is normally 1.95:1. McCollum's diet does not contain enough phosphorus. If the phosphorus is increased without the addition of calcium, or if the calcium is reduced in this diet, rickets does not develop. An excess of calcium in the diet results in a lowering of the inorganic phosphorus and in rickets. Glanzmann was not able to find that vegetable vitamins prevent rickets; vegetables like other foods, fresh or autoclaved, have an antirachitic action when they contain compounds (lecithin, potassium salts) which correct the disturbed calcium-phosphorus ratio in the blood. Consequently it was found that vitamin-free ovolecithin or vitamin-poor beef (which reduces the excretion of the phosphoric acid through the intestines) had a very efficient antirachitic action. That overfeeding with cow's milk predisposes children to rickets may be explained by the high calcium carbonate content (which lowers the phosphorus percentage in the blood), by the high protein content which leads to an increased excretion of phosphorus, and by the fact that the fats in milk have not the same protective quality against the rachitic factors in milk as the fats in cod liver oil, for example. The regulation of the blood phosphorus is especially dependent on the liver (which discharges continually phosphorus-containing fats into the blood stream), on the pancreatic islands (insulin decreases the phosphorus content in the blood), and on the parathyroids (removal of the parathyroids increases the phosphorus content of the blood). Irradiation of rachitic rats (Hess) results in an increase of phosphorus in the blood.

Clinica Pediatrica, Modena

7: 321-384 (June) 1925

- *Sweating in Infants. A. B. Marfan.—p. 321.
- *Subcutaneous Emphysema of Pulmonary Origin. C. L. Cattelan.—p. 332.
- Fatal Jaundice-Ascites-Nephritis Syndrome in a Child. G. Bentivoglio. —p. 355.

Connection Between Sweating and Pyodermatitis in Infants. —Marfan urges the necessity for guarding infants against sweating, as this invites suppurative skin affections and perpetuates them. Artificial feeding and rickets are responsible for excessive sweating, and the main indications in pyodermatitis is a change to breast feeding and means to combat the rickets. Local measures are futile unless the tendency to excessive sweating can be overcome.

Spontaneous Pneumothorax in Children.—Ten cases are described by Cattelan in which the gases in stomach or bowel found their way into the subcutaneous tissue from trauma, or perforation of a destructive process, or from spasmodic coughing. One boy, aged 3, in the course of measles with whooping cough developed tympanism in the chest, compelling puncture of the pleura. The subcutaneous emphysema spread all over the head and trunk. The pressure had ruptured not only alveoli but the pleura, and the bilateral pneumothorax contributed to the fatal outcome. Tuberculosis was manifest in seven of the ten cases.

Giornale Ital. di Derm. e Sifilologia, Milan

66: 1025-1172 (June) 1925. Partial Index

- *Herpes Zoster with Syphilis. M. Artom.—p. 1044.
- Roentgenotherapy in Itching Eczema. R. Porcelli.—p. 1114.
- *Bromids by the Vein in Pruritus. C. Felugo.—p. 1120.
- *Extragenital Primary Chancres. F. Ronchese.—p. 1123.

Herpes Zoster in Syphilis.—Artom describes two cases in which herpes zoster developed in the course of neurosyphilis; another two in tabes, and two in general paresis. The onset always corresponds with a flaring up of the syphilitic process. One tabetic had herpes zoster on the chest when gastric crises first developed, and had another attack, two years later. The zoster was restricted to the neck this time, as symptoms of cerebral syphilis became manifest.

Bromids by the Vein in Dermatology.—Felugo reports excellent results from intravenous injection of sodium or calcium bromid in rebellious cases of pruritus, evidently a true sensory neurosis of the skin. It benefited also in Hegar's prurigo. There were no untoward by-effects, but the outcome was disappointing in his twenty cases except so far as the pain and itching were concerned.

Extragenital Primary Chancres.—Ronchese found multiple chancres in 156, that is, in 7.4 per cent. of his 1,132 cases of initial syphilis. The primary lesion was extragenital in ninety-four cases (thirty-three men).

Pediatria, Naples

33: 737-800 (July 15) 1925

- *The Measles Virus. G. Salvioli.—p. 737.
- *Epinephrin in the New-Born. C. Gallo.—p. 745.
- *The Fourth Symptom of the Hutchinson Triad. A. Oro.—p. 751.
- *The Weiss Reaction in Tuberculous Children. G. Roi.—p. 762.
- Three Unusual Cases of Diphtheria. Sindoni and Guccione.—p. 773.
- *Etiology of Epidemic Encephalitis. M. Misasi.—p. 781.

Research on the Caronia Measles Virus.—Salvioli used Di Cristina's citrated broth medium to make cultures from the blood in thirty-six cases of measles. The positive results in fourteen confirmed Caronia's statements. His technic differed from Caronia's in many respects, especially the smallness of his doses in vaccination, and eleven of the thirteen infants vaccinated with the cultures developed measles in spite of the vaccine.

Effect of Epinephrin on the New-Born.—Gallo's tabulation shows that an intramuscular injection of 0.5 gm. of the 1:1,000 solution of epinephrin almost regularly increased the leukocytes by 2,000 to 5,000. He ascribes this to an action on the peripheral vessels.

Joint Lesions in Congenital Syphilis.—Oro asserts that chronic hydrarthrosis is a more common manifestation of congenital syphilis than deafness. The Hutchinson triad should be amended to include it, or the triad should be a quadrad. In eleven cases he describes, the knee was the joint affected, but in two the elbow and shoulder had been previously involved. There was otitis media in eight of the eleven subjects. In all the joint disturbances promptly disappeared under specific treatment for syphilis. The hydrarthrosis may not develop until adult life. The tenderness of the swollen joint and the aggravation at night should suggest the diagnosis.

The Urochromogen Reaction in Tuberculous Children.—The findings were never positive in eighteen of twenty children with tuberculous bronchial glands, and they became negative in the two others as the tuberculin test veered to negative.

Etiology of Epidemic Encephalitis.—Misasi reviews the international literature, remarking in conclusion that the Americans, Strauss, Loewe and Hirschfeld, and the Italians, Maggiore and Sindoni, have nearly, if not entirely solved the problem. The Italians regard epidemic encephalitis as the same disease as epidemic poliomyelitis, differing only in the organs affected by the filtrable virus. They have found the vaccines and antiserums interchangeable.

Rivista di Clinica Pediatrica, Florence

23: 433-504 (July) 1925

- *Basal Metabolism in Tuberculous Children. C. Cisi.—p. 433.
- *Correlations of Hormones. A. Cabitto.—p. 462.
- *The Intradermal Test for Malta Fever. G. Sorge.—p. 471.

The Basal Metabolism in Tuberculous Children.—Cisi tabulates the findings in forty-nine children, some examined more than once. The basal metabolism was normal in 79.5 per cent.; above normal in 16.3 per cent., and below in 6.2 per cent.

Correlation of Hormones.—Cabitto studied this subject by the action of extracts of different organs on the frog eye.

Intradermal Test for Malta Fever.—Sorge found this test unreliable. There was a positive reaction in 80 per cent. of the fifteen Malta fever cases, but also in nearly 30 per cent. of the eighty-six patients with other affections.

Lisboa Médica, Lisbon

2: 177-228 (April) 1925

- Insulins. Fernando Fonseca.—p. 177.
- Subphrenic Gas Abscess with Eventration of the Diaphragm. Armando Narciso.—p. 184.
- Pancreatic Cyst in Adult Male. J. H. Cascao de Anciães.—p. 198.
- *Primary Tuberculosis of Muscle. Casimiro Afonso.—p. 212.

Primary Tuberculosis of Muscle. — Casimiro Afonso describes a case of a tuberculous process in the vastus internus in a young woman. He comments on the difficulty of differentiating a tuberculous from a syphilitic process in the muscle. With a gumma, there is considerable vascularization and a tendency to fibrous transformation, rendering delimitation difficult between the gumma and the surrounding tissues, contrary to what is observed in tuberculosis. The patient had synovitis in the forearm which had clinically preceded the muscular tuberculosis. The lesion was resected.

Memorias do Instituto Oswaldo Cruz, Rio de Janeiro

17: 229-399, 1924. English and French Translations

- Flagellate Parasites of the Cavy. G. Hasselmann.—p. 229.
- Study of the Scorpions of Brazil. O. de Mello Campos.—p. 237.
- The Helminth Fauna of Brazil. XVII. L. Travassos.—p. 365.
- Helminthiases of Children in State of Paraná. de Souza Araujo.—p. 389.

Prensa Médica Argentina, Buenos Aires

12: 97-128 (June 30) 1925

- *Pylorus Insufficiency. Bonorino Udaondo and Sanguinetti.—p. 97.
- *Urticaria and Dermographism. Castex and Camauer.—p. 103.
- Provisional Prostheses. N. Tagliavacche.—p. 113.
- *Balantidiasis in Argentina. F. L. Niño.—p. 114.

Insufficiency of the Pylorus as an Aid in Diagnosis.—This study of pyloric insufficiency emphasizes the nervous factor which may be entirely or partially responsible for the symptoms. Not only ulcer or tumor in the stomach or duodenum may be responsible for the obstruction, but it may be secondary to remote lesions, chronic appendicitis, tuberculous peritonitis or disease in the biliary apparatus. With insufficiency of the pylorus secondary to a cancer or ulcer, surgical measures should always be tried, even if resection is not possible, in order to free the sphincter from the adhesions which impede its function

Urticaria and Dermographism.—In this tenth instalment of their study of the clinical manifestations of the sympathetic system, Castex and Camauer report some cases which show its intimate participation in itching dermatoses, and in dermographism In some of the cases there seems to be complete anarchy in the vegetative sphere

Balantidiasis in *Argentina*.—*The young woman* with grave colitis from infection by the balantidium had always resided in Buenos Aires. It is the third case to be published in Argentina.

Deutsche medizinische Wochenschrift, Leipzig

51: 1223 1264 (July 24) 1925

The Surgical Treatment of Endocrine Disturbances E König.—p 1223.
Pressure Relieving Operations E von Hippel —p 1225
Vaginal Versus Rectal Examination by Midwives Reifferscheid —p 1229.
*Artificial Pneumothorax and Erythrocytes Dünner and Mecklenburg.—p 1231
Serodiagnostic Methods for Syphilis W Schöndorff.—p. 1231.
Prevention of Diagnostic Blunders S Kalischer —p. 1233.
*Paratyphoid Cholecystitis A Löwenthal —p 1234.
Prophylaxis of Acidosis P Ziegelroth —p 1236
The Pancreatic Ferment in Dermatologic Therapy. P. Zadik.—p 1236.
Intense Serum Sickness in an Adult Male H Vollmer.—p. 1237.
Iodin Spray for Local Use Hennicke —p 1238
Needle for Transfusions O Ansinn —p 1238
Instrument to Obtain Secretions in Gynecologic Practice. E. Guttmann.—p 1239
Recent Works on Infectious Diseases. O Moog —p 1239.
*Infant Mortality in Berlin, 1924 C Wiese —p 1240
The Hygiene Institutions in Palestine Canaan —p 1242.
Changes in the Social Insurance E Scholz —p 1242.
Gratuitous Treatment of Physicians Hanauer —p 1243.
Medical Health Insurance Companies O Salomon —p 1243.
The "Thousand Years Exposition" at Cologne W Haberling —p. 1244.
Medicine and the History of Art Vorwahl —p 1245
Virchow and Frerichs in the Fight Against Nostrums. Schwalbe —p. 1245.
Homeopathy E Muller —p 1246 Conc'n

Artificial Pneumothorax and the Erythrocytes.—Polycythemia does not follow pneumothorax treatment, because the other lung provides for the respiratory requirements. Dünner and Mecklenburg have demonstrated that patients with a completely collapsed lung are perfectly normal as to respiratory volume, oxygen absorption, carbon dioxid expiration, and the pulse rate Findings on dogs may lead to erroneous conclusions, because the dog has a perforated mediastinum, and pneumothorax is therefore almost always bilateral.

Paratyphoid Cholecystitis.—Lowenthal reports two patients (husband *and wife*) *who were operated on for cholecystitis*. In both cases the paratyphoid B bacillus was found in the bile Both recovered after cholecystotomy.

Infant Mortality in Berlin.—The mortality of legitimate infants rose during the war, but returned to prewar figures in 1920 The mortality of illegitimate infants, however, rose particularly after the war and reached 307-330 in 1,000 living born during 1920-1922 (as compared to 194 in 1913). Wiese believes that the depreciation of the mark is responsible for this rise (See Berlin Letter on page 761.)

Deutsche Zeitschrift für Chirurgie, Leipzig

191: 321-413 (July) 1925

*Cancer of the Colon H Porges —p 321
*Mastitis Walzel Wiesentreu and F Starlinger —p 336
Cerebral Tumors L Schonbauer —p 343
Kirschner's Bone Suture A Winkelbauer —p 353
Amyloid Goiter in Man of 52 P Moritsch —p 361.
Injuries to Recurrent Nerve in Goiter Operations Schneider.—p 369
Primary Sarcomas of the Small Intestine. E Koch —p 376
Volvulus in an Incarcerated Hernia L Tseng —p. 390
Pseudotumor of the Bone M Wulfing —p 397.
The Lymphatic Glands of the Lower Extremities Most —p 408

Surgery of Cancer of the Colon.—Porges reports the operative technic, the symptomatology, and the results in 312 cases from Hochenegg's clinic. A merely exploratory operation was done in 18 cases; in 72 cases, colostomy; in 50, an anastomosis, and in 172 cases, *or 55 per cent*, a radical operation was performed Of the latter group of 172 patients, 28 per cent. survived for at least three years *without metastasis* or recurrence; seven for ten years. The method of choice for tumors on movable parts is the two-stage operation. Tumors of the cecum or the hepatic flexure are resected in a one-stage operation. The three-stage method is used only when special conditions make it imperative.

Mastitis.—Walzel-Wiesentreu and Starlinger reexamined ninety-eight women who had been treated for mastitis during a recent twenty year period (total 1,456, but only ninety-eight could be traced). In no case did they find cancer in the mamma. Multiple radial incisions yielded poor results as to permanence of the cure, function and disfigurement. The method of choice is incision with a spherical *cautery in a* circumscribed abscess formation. With diffuse interstitial mastitis, the treatment advocated by Bardenheuer is followed.

Klinische Wochenschrift, Berlin

4: 1433-1480 (July 23) 1925

Homeopathy, Logic, and the Emotional Complex Associated with a Mental State Heubner.—p 1433. Conc'n See Berlin Letter, p. 761.
*The *Action of* Ergot on the Sympathetic Nerve E Rothlin —p. 1437.
Experimentally Induced Sympathicotonia. Wohlgemuth and Seo —p 1443.
Agglutination and Sedimentation of Erythrocytes G. H. Schneider.—p 1445.
*Hormones in Vitamin Deficiency. J. Serebrijski et al —p. 1447.
Case of Bismuth Exanthema Holzamer and Schultze-Heubach —p. 1448.
Interstitial Pregnancy. K Hellmuth —p 1451.
Treatment of Intertrigo in Infants E Poeck —p 1453.
*Immunization Against Diphtheria by Mouth W. Pockels —p. 1454.
*Potassium Ions and Insulin Action E. Kylin —p 1455.
Tar Sarcomas in Mice from Intraperitoneal Injection. Löwenthal.—p. 1455
Bilateral Renal Tuberculosis. W. Hofmann —p 1456
Congenital Syphilis. O. Mergelsberg —p 1457.
*Tuberculosis Mortality and Industrialization G Wolff —p. 1459.

The Ergot Alkaloid.—Rothlin studied the pharmacodynamic action of the ergot alkaloid on isolated organs, and found that it paralyzes selectively all the sympathetic nerve endings. The same antagonism that exists between the action of *pilocarpin and atropin for the parasympathetic nerve endings* exists between epinephrin and the ergot alkaloid.

Hormones in Rats on a Vitamin-Free Diet.—It is well known that in rats which have become rachitic as a result of vitamin-free feeding, the phosphorus content of the blood is low. Serebrijski, Vollmer and Zadek injected such rats with extracts from the thymus, the ovary, and from the pituitary. These rats secreted less acids in the urine than the controls, *their blood phosphorus was normal, but the rachitic con*dition remained uninfluenced.

Immunization Against Diphtheria by the Mouth.—Pockels treated 100 Schick-positive children with toxin-antitoxin *mixture by the mouth, and* found that after this procedure (how long after is not stated), ninety-one of these children were Schick-negative. But it appears that this immunity is retained for a short period only.

Ions and Insulin Action.—Kylin found that the potassium ions enhance and the calcium ions reduce the effect of insulin on the blood sugar.

Tuberculosis Mortality and Industrialization.—Wolff shows with a large statistical material that the tuberculosis mortality rate is considerably lower in densely populated, industrialized districts, such as England or Saxony, than in the much less highly civilized alpine districts of Bavaria and Austria and in the *steppes of Hungary*.

Medizinische Klinik, Berlin

21: 799 838 (May 29) 1925

*Metabolism of Minerals C. Hirsch —p. 799
*Diagnosis of Intraperitoneal Extravasation Vogt —p 804.
*Hemorrhage and Anemia in Syphilis Citron and Hirschfeld —p. 805.
*Adolescent Mothers K Jaroschka —p 808
*Etiology of Vesicular Mole. A. Haas —p 811.
*A Peculiar Form of Influenza E Bernheim —p 811.
*Jaundice of the New Born. H. Slobosiano and P. Herscovici —p 813.
Predisposition or Exposure to Tuberculosis Liebermeister —p 814.
Treatment of Tuberculous Peritonitis A. Fritz —p 814
*Indicanemia and Insufficiency of the Kidneys O. Klein —p 816.
Connection Between Trauma and Death from Tuberculosis *von Schnizer.*—p 820
Recent Works on Bronchial Asthma. G. Noah.—p 823. *Conc'n.*
Social Medicine at Spas F. Grünbaum —p 837

Metabolism of Minerals.—Hirsch reviews the physiology and pathology of the mineral metabolism, with especial regard to plants.

Diagnosis of Intraperitoneal Extravasation by the Sense of Smell.—Vogt noticed a peculiar odor of the whole body and the tissues in grave intraperitoneal hemorrhages. He points to Bätzner's investigations which demonstrated the toxicity of the residual blood from animals that were bled to death. The odor may be due to some products present in the blood of such women.

Hemorrhagic Diathesis and Anemia in Treatment of Syphilis.—Citron and Hirschfeld emphasize the necessity for interrupting immediately the antisyphilitic treatment when signs of a hemorrhagic diathesis or anemia appear.

Childbirth in Adolescents.—Jaroschka publishes statistics on 239 cases of labor in girls from 13 to 17 years of age. The disadvantages for the mother and child seem to be very slight, he says.

Etiology of Vesicular Mole.—Haas observed three times a hydatidiform mole in the same patient. She had enlarged polycystic ovaries, resembling histologically folliculomas. This patient's sister had also a mole.

Peculiar Form of Influenza.—Bernheim reports on a few instances of attacks of severe pains in the muscles, especially of the right epigastrium. The temperature was normal. He regarded the condition as an influenzal myositis.

Cinchophen in Jaundice of the New-Born.—Slobosiano and Herscovici gave 0.1 gm. of cinchophen (with or without 2 gm. of sugar) daily to the new-born infants with jaundice. The jaundice disappeared in twelve days in 80 per cent. of the sixty-seven treated with cinchophen.

Indicanemia and Insufficiency of the Kidneys.—Klein found a discrepancy between the high residual nitrogen and the low indicanemia in acute glomerular nephritis, in diabetic coma, and in grave insufficiency of the kidneys. Anomalies in the cleavage of proteins may be assumed in all of these cases.

Monatsschrift für Geb. und Gynäkologie, Berlin

70: 1-120 (July) 1925

*The Fetal Hormones. W. Lüttge and W. v. Mertz.—p. 1.
The Blood Proteins During Gestation. L. Kraul.—p. 6.
*Injury of Child by Intra-Uterine Intervention. G. Winter.—p. 12.
Frontal Presentation. K. Fink.—p. 29.
Folds in Scalp of New-Born. K. Volkmann.—p. 36.
Amnion Hydrorrhea. H. R. Schmidt.—p. 44.
Etiology of Retroflexion of the Uterus. Hochenbichler.—p. 56.
*Castration and Ovarian Deficit Phenomena. Wolmershauser.—p. 63.
Neurologic and Psychiatric Indications for Sterilization of Women. E. Meyer.—p. 79.
Resorption Treatment of Chronic Gynecologic Affections. M. Sserdjukoff.—p. 86.
Case of Carcinoma of Bartholin's Gland. K. Neuwirth.—p. 93.

The Fetal Hormones.—Lüttge and von Mertz reiterate that blood from the umbilical vein of a male infant acts on testicle substance, as likewise the blood of a woman with a male fetus in the uterus. They accept this as evidence of the physiologic passage of hormones from the fetus to the mother. An attempt at artificial fecundation was made in two women, all conditions apparently favorable. Tests of the women's blood the same and the next day failed to show any action on testicle substance. Absorbed sperma thus will not have a disturbing action on the serologic determination of the sex of the fetus in the uterus.

Injury of Child by Intra-Uterine Intervention.—Winter presents data to sustain his assertion that version and all other intra-uterine interventions have very serious consequences for the child, as they entail intra-uterine asphyxia which grows progressively graver the more severe the intervention and the more time has elapsed. The injury to the umbilical cord, to the placenta, and the irritation and shock to the fetus itself amply explain the disturbances. The conclusion from his research is the impressive warning, to postpone all intra-uterine interventions until the os is fully dilated, so that the extraction or delivery can follow at once.

Castration and Ovarian Deficit Phenomena.—Wolmershäuser analyzes 146 uterine myoma cases treated by irradiation (131) or myomectomy (15). The resulting deficit phenomena seem to occur in about the same proportion and intensity whatever the treatment. They seem to depend more on the woman's nervous and mental condition than on the mode of castration.

Münchener medizinische Wochenschrift, Munich

72: 1231-1278 (July 24) 1925

*The Mania in Asthenic Women for Operations. A. Krecke.—p. 1231.
Technic of Blood Transfusions. A. Beck.—p. 1232.
Tests for Resistance of Erythrocytes Against Osmosis and Alcohol. B. Spiethoff.—p. 1236.
Chemical Irritation in the Pathogenesis of Cancer. H. Burckhardt.—p. 1237.
*Symptoms of Pulmonary Embolism. K. Bingold.—p. 1237.
*The Dangers of Sinusitis and Its Treatment. G. Riedel.—p. 1239.
Case of Malignant Chordoma. K. Walz.—p. 1241.
*The Duodenum-Pylorus Reflex. Bársony and Egan.—p. 1242.
*Large Thyroid in School Children. Klein.—p. 1244.
Alimentary Disturbances in Bottle-Fed Infants. P. Widowitz.—p. 1246.
Acute Yellow Atrophy of the Liver. S. Büchner.—p. 1249.
Early Diagnosis of Appendicitis. Rapp.—p. 1250.
Treatment of Varicose Veins and Ulcers. Walter.—p. 1251.
Gastrophilus Haemorrhoidalis in a Woman. V. Liodt.—p. 1252.
Fractures of the Femur. F. Lange.—p. 1253. Cont'd.
Proposed Legislation on Abortion. Schiedermair.—p. 1256.
Bill for Financial Aid at Childbirth. Klotz.—p. 1257.
The Older Literature on Syphilis in Animals. P. Hildebrand.—p. 1257.
Recent Dermatologic Literature. J. K. Mayr.—p. 1261.

The Mania of Asthenic Women for Operations.—Krecke describes a type of asthenic women with relaxed abdominal musculature and more or less complete enteroptosis, who complain of chronic gastric pain, and who are frequently diagnosed as having a peptic ulcer. They urge the physician to operate, frequently several times, and are never relieved from their symptoms. They have no ulcer, and psychotherapy may often be more successful than operations for which there are no indications.

Symptomatology of Pulmonary Emboli.—Bingold emphasizes that postoperative and thrombophlebitic pulmonary emboli frequently do not display the symptomatology the textbooks teach. There may be only localized pains in the chest, followed by hemorrhagic sputum, or the formation of a pulmonary abscess. On the other hand, the patient may have pains and muscular rigidity in the right lower abdomen; ileus-like or appendicitic symptoms may entirely obscure the clinical picture of pulmonary embolism in the beginning.

Nasal Sinusitis.—Irrigation of the sinuses is never without danger, especially in acute processes. In case of fever, or when a fibrous exudate has formed, irrigation should not be performed. Riedel believes that operative treatment of the antrum frequently entails inflammation in the ethmoidal and frontal sinuses. The latter and the sphenoidal sinus should be operated on only when persistent headaches cannot be cured by an antrum operation and conservative treatment.

The Duodenum-Pylorus Reflex.—Bársony and Egan draw the following conclusions from their experimental and clinical work: Hydrochloric acid in amounts found under physiologic or pathologic conditions does not influence the tonicity, the peristalsis or the emptying time of the stomach, nor does it modify the pyloric mechanism. Amounts which exceed the amounts ever found in hyperacidity paralyze the gastric musculature, and delay or prevent the emptying process.

Large Thyroid in School Children.—Klein reports from Essen in the Rhineland the frequent occurrence of this condition. He believes that it is due to the general poor living conditions, and especially to the lack of iodin-containing vegetables in the food of the majority of the children.

Wiener klinische Wochenschrift, Vienna

38: 829-852 (July 23) 1925

Test for Iodin Action in Connection with Asthma. H. Pollitzer and E. Stolz.—p. 829.
*Treatment for Severe Burns. G. Riehl.—p. 833.
The Physical Elements in Cell Multiplication. F. Orthner.—p. 834.
The Determination of the Sugar Value in Food. W. Falta.—p. 838.
*The Bacteriophage in Treatment of Colon Bacillus Infections. B. Frisch.—p. 839.
The Cautery in the Treatment of Mastitis. A. Kameniczky.—p. 843.

Treatment of Severe Burns.—Riehl reports the case of a woman with severe burns, covering more than 40 per cent. of the body surface, whose life was apparently saved by blood transfusion. In another similar case the same procedure resulted in a prolongation of life.

Treatment of Infections of the Urinary Tract with the Bacteriophage.—Frisch treated patients with chronic cystopyelitis with instillations of active bacteriophage cultures into the pelvis of the kidney. The results, even in very persistent cases, were very encouraging.

38: 853-876 (July 30) 1925

Newer Problems in Cancer Research. Bauer and Nyiri.—p. 853. Cont'd.
*The Etiology of Renal Amyloidosis. H. Beitzke.—p. 857.
*Malaria Treatment for General Paralysis. Jagić and Spengler.—p. 859.
Two Cases of Atypical Typhoid Fever. P. Ceranke.—p. 860.
A Liver Lobe Adherent to the Stomach. E. Schütz.—p. 863.
*Proliferation of Lymphatic and Myeloid Tissues. Robitschek.—p. 863.
Endocrines and Gastro-Intestinal Tract. F. Boenheim.—p. 867.
The Treatment of Typhoid. F. Kovács.—p. 867.

Chronic Amyloid Nephrosis.—A satisfactory explanation for the pathogenesis of amyloid nephrosis in patients, who do not suffer from a wasting or purulent disease, has not been established as yet. Beitzke reports three cases of this type. In two of them, he considers suppurating lesions of long standing—but which had healed long before the symptoms of the renal disease became manifest—as the causative factor. In the third case a recurring fibrinous pneumonia was probably the cause of the renal condition. It does not seem probable that a chronic nephritis will ever become transformed into amyloid degeneration of the kidney.

Syphilitic Aortitis and Malaria Treatment of Paralysis.—Jagić and Spengler state that patients with a syphilitic mesaortitis suffer no ill effects from the malaria treatment. In most cases they observed a considerable decrease in the blood pressure, and in patients who had symptoms of angina pectoris the symptoms were not infrequently relieved.

Proliferation of Lymphatic and Myeloid Tissues.—A man, 52 years of age, was admitted to the hospital with symptoms of motor aphasia and a hemiparesis. The skin and mucous membranes showed several hemorrhagic spots, the spleen was swollen, the temperature of septic type. The blood contained normoblasts, myelocytes, myeloblasts, and only 10 per cent. lymphocytes. The patient died four days after admission. The ileocecal valve was found transformed into a tumor mass, which resembled very much a lymphosarcoma, consisting of small lymphocytes only. The spleen, the liver, and the mesenteric lymph glands contained many small cellular infiltrations which consisted of myeloblasts and myelocytes. Robitschek believes that the myeloid granulations were caused by an infectious agent.

Zeitschrift für Geb. und Gynäkologie, Stuttgart

89: 1-210 (July 31) 1925

*The Acetone in the Blood in Pregnancy. Bokelmann et al—p. 1.
Operations for Myoma. B. Aschner.—p. 17.
*Bile Elements in the Blood During Pregnancy. G. Süsstrunk.—p. 49.
Physicochemical Conditions of Menstruation. A. Gengenbach.—p. 56.
*The Blood Uric Acid in Pregnancy. Bokelmann and Rother.—p. 72.
Episiotomy. F. C. van Tongeren.—p. 76.
Immunity Against Spermatozoa. Bodnár and Kamniker.—p. 85.
Interstitial Pregnancy. W. Schmitt.—p. 87.
Prolapse Operations and Delivery. E. Vogt.—p. 118.
Teleangiectases in the New-Born. M. Hagenbuch.—p. 127.
*Basal Metabolism During Menstruation. W. Lanz.—p. 133.
Ovarian Teratomas. R. Meyer.—p. 142.
Uncomplicated Transverse Presentation. Sachs and Poeck.—p. 145.
Physiology and Management of Third Stage of Labor. von Schubert. —p. 183.

Acetone in the Blood of Pregnant Women.—Bokelmann, Bock and Rother found that the acetone content of the blood is 43.5 per cent. higher during pregnancy than in normal nonpregnant women. During the second stage of labor the acetone rises still more, and reaches an average amount of 12 mg. per hundred cubic centimeters of blood; shortly after delivery, the actone returns to normal values.

Bile Products in the Blood During Pregnancy and Delivery.—Süsstrunk found in 35 per cent. of pregnant women an increase in the blood bilirubin; in 71 per cent. of the cases he found an increase during childbirth. The bilirubin content is especially high in women with eclampsia, but it does not parallel the amounts of biliary acids in the blood, and it does not seem to be influenced by renal disturbances.

Uric Acid in the Blood During Pregnancy and Delivery.—Bokelmann and Rother found in pregnant women rather low values, an average of 2.74 mg. per hundred cubic centimeters of blood and about the same amount at the beginning of childbirth. The uric acid may increase slightly after delivery. In eclampsia the uric acid is always considerably increased.

The Influence of Menstruation on the Basal Metabolism.—In healthy women menstruation frequently does not influence the basal metabolism, but Lanz found that in sick women the menstrual cycle exerts a definite influence on the metabolic rate. Toward the end of the interval and in the premenstrual period the rate increases; at the beginning of the menses it decreases quickly and it reaches the lowest value in the beginning of the interval. This cycle parallels the development of the corpus luteum.

Zeitschrift für Urologie, Leipzig

19: 561-640, 1925

Present Status of Treatment of Nephritis. L. Casper.—p. 565.
Gonococcus Infection in Men; Evidence of Cure. Balog.—*p. 576.*
Satisfactory Bladder Formed from Sigmoid Loop. P. Strassmann. —p. 583.
Regeneration of the Bladder After Excision. C. Ravasini.—p. 601.
*Diathermy in Complications of Gonorrhea. V. J. Marselos.—p. 604.
A Classification of Retention Tumors of the Kidney. B. Laqueur.—p. 610.

Diathermy in Treatment of Gonorrheal Epididymitis and Orchitis.—Diathermy treatment arrests pain almost immediately; it shortens the period of inflammation and it prevents spreading of the infection and the development of sterility. Marselos describes a special technic for this treatment.

Zentralblatt für Chirurgie, Leipzig

52: 1633-1696 (July 25) 1925

The Goiter Problem. Eggenberger.—p. 1634.
Transpleural Access to Subphrenic Abscess. E. Orsós.—p. 1637.
Improved Dovetail Technic for Osteosynthesis. Linberg.—p. 1640.
Plastic Mobilization of the Knee. W. Fickenwirth.—p. 1642.
Drainage of the Common Bile Duct. A. W. Wischnewsky.—p. 1644.
*Dangers of Periarterial Sympathectomy. A. Hilse.—p. 1645.
Improved Nail Extension. H. Degenhardt.—p. 1648.
Two Common Diagnostic Blunders in Accident Practice. Niedlich.—p. 1649.

Periarterial Sympathectomy.—If an infected process is present in the limb on which sympathectomy is to be performed, Hilse believes that the danger of infection of the operation wound and of the arterial wall is very great. Infected thrombi and severe hemorrhages may occur, and may make amputation imperative.

Zentralblatt für Gynäkologie, Leipzig

49: 1633-1696 (July 25) 1925

*Movements of Fallopian Tube. F. v. Mikulicz-Radecki.—p. 1655.
Hypertrophy of Uterine Mucosa Following Ovarian Tumors. R. Meyer. —p. 1662.
Transperitoneal Medication During the Third Stage. H. Bergmann.—p. 1667.
Ozone for Pneumoperitoneum. A. Schücking.—p. 1671.
Case of Prolapse-Inversion of the Uterus. H. Hirsch.—p. 1672.
Treatment of Postpartum Hemorrhage. Burger.—p. 1674.

Spontaneous Movements of the Fallopian Tubes.—Von Mikulicz-Radecki observed on virgin rabbits rhythmic contractions of the circular muscle fibers, with the general direction from the ovary to the uterus. Simultaneously there existed a pendulous movement, similar to that of the intestines. Peristalsis was absent.

Zentralblatt für innere Medizin, Leipzig

46: 689-720 (July 25) 1925

The Mechanism of Pathologic Changes in the Heart. G. Schaetz.—p. 690.
Fatal Perforation of Esophagus During Gastroscopy. A. Bingel.—p. 695.

46: 721-736 (Aug. 1) 1925

*The Excretion of Colloids in Diabetes. H. Pribram.—p. 721.
Historical Notes on Silica Therapy. G. Zickgraf.—p. 725.

Excretion of Colloids.—Pribram found that in diabetes the urine colloids are increased. Insulin treatment diminishes the foam-producing colloids, which Pribram considers to be chiefly protein cleavage products, and which may play an important rôle in the pathogenesis of the diabetic toxicosis.

Časopís lékařů českých, Prague

64: 1021-1048 (July 4) 1925

Roentgen Diagnosis of Benign Tumors of Stomach. Sigmund.—p. 1021.
Prevention and Treatment of Genital Prolapse. J. Trapl.—p. 1025.
*Blanching of Flour. G. Kabrhel.—p. 1029. Conc'n.
*Glanders. E. Zeman and V. Tomášek.—p. 1032. Conc'n.
*Tuberculous Cavities. J. Jedlička.—p. 1039.

Blanching of Flour.—Kabrhel advises prohibition of artificial blanching of flour with chlorin. It has an advantage only for the factory, and all the disadvantages for the consumer.

Glanders.—Zeman and Tomášek observed two cases of malleus in veterinary surgeons. The incubation period was six days in one, twenty-four days in the other. The general character of the infection was pyemic. Strauss' experiment, agglutination and complement fixation were negative in the first case. The serologic tests became positive in the other, before the inoculation of two guinea-pigs succeeded. In spite of the absence of tuberculosis, the serum from both patients gave a positive complement fixation with Boquet and Nègre's antigen.

Diagnosis and Curability of Tuberculous Cavities.—Jedlička reviews the chances of recovery with tuberculous cavities. He checked by a series of roentgen pictures the process of complete healing of a cavity. The shadow measured 5 by 4 cm.

Archiv Biologitcheskih Nauk, Moscow

24: 3-160, 1924. Partial Index

Mallein and Glanders. K. Kressling.—p. 3.
*Differentiation of Typhoid Bacilli. V. Ioffe.—p. 31.
*Bacteremia in Tuberculosis. K. Vvedensky.—p. 39.
*The Blood in Scabies. K. Tsvetkova.—p. 49.
Immunization with Fats. J. Lebedeva.—p. 57.
*Sulphatids of the Brain. A. Petrunkina.—p. 77.
Biochemistry of the Brain. P. Astanin.—p. 87.
*Mucus of the Stomach. M. Brestkin and K. Bykoff.—p. 97.

Differentiation of Bacilli of Typhoid Group.—Ioffe uses different milk agar mediums for cultures. One culture was made on milk agar; another in peptone agar mixed with the mineral or organic salts of milk, while meat peptone agar was used for the control culture. Growth of bacilli, occurring within eighteen hours, but only in the meat peptone control tube, reveals the typhoid bacillus. Growth in the control tube and also in that with peptone agar and milk salts, indicates the paratyphoid bacillus A, while bacterial growth in all three tubes is characteristic for the paratyphoid bacillus B. He uses 2 per cent. agar; 1 per cent. peptone, and 0.5 per cent. sodium chlorid. The 0.15 per cent. of sodium citrate (organic salt of milk) seems to be what prevents the growth of the typhoid bacillus.

Significance of Bacteremia in Surgical Tuberculosis.—On the basis of the literature and personal research in 150 cases, Vvedensky concludes that the presence of tubercle bacilli in the blood, with surgical tuberculosis, does not depend on the localization of the affection. The blood (treated with an alkaline solution of sodium hypochlorite) shows the bacilli in from 60 to 82 per cent. of cases of surgical tuberculosis without an active process in the lung. The presence of the bacilli in the blood is not significant in prognosis, since they may appear at any stage of the disease. Under subcutaneous injections of tuberculin they become more pronounced in the blood. Tubercle bacilli are never found in the blood of persons free from tuberculosis. Detection of the bacillus in the blood may help in the diagnosis of the tuberculosis.

Eosinophilia in Scabies.—Tsvetkova emphasizes that eosinophilia was pronounced in her forty-two patients with scabies, especially in the beginning of the disease.

The Sulphur in the Brain.—Petrunkina's research confirmed the presence of sulphur in the lipoids of the white as well as of the gray matter of the brain. The amount varies with the progress of autolysis after death. Alcohol or ether extracts of the brain, especially of the white matter, contain about 0.5 per cent. of sulphur. The instability of the sulphatids and the appearance of sulphuric acid in the cerebrospinal fluid may be significant in the biochemistry of the brain.

Rôle of Gastric Mucus in Digestion.—The results of Brestkin and Bykoff's study demonstrated that the gastric mucus is an active factor in digestion. The mucus obtained outside of digestion as well as during food, mechanical or chemical irritation, contains a concentrated ferment which passes into and acts on the food substances. Digestion in test tubes, with and without mucus, always proceeded much more vigorously in the mucus tubes.

Hygiea, Stockholm

87: 417-448 (June 15) 1925

*Toxic Goiter. A. Troell.—p. 417.
History of Medicine in Japan. J. Almkvist.—p. 436. Conc'n.
Recent Works on Iodin Prophylaxis of Goiter. A. Josefson.—p. 445.

Operative Treatment of Toxic Goiter.—Troell relates that all were much improved or cured of his forty-nine patients that survived the operation on the thyroid for toxic goiter; seven died in connection with the operation under general anesthesia. The best results may be anticipated, he says, with toxic adenoma of the thyroid. With diffuse toxic goiter, if the basal metabolism is increasing, an operation should not be delayed too long, but it must not be too radical at first.

87: 497-528 (July 15) 1925

*Case of Bothriocephalus Anemia. A. Grönberg.—p. 497.
Case of Right Anterior Pleuritis. A. Grönberg.—p. 504.

Bothriocephalus Anemia.—The parasite had caused merely negligible symptoms for twenty years. Then anemia of the pernicious type developed abruptly and became very grave after a herniotomy and hydrocele operation. The almost moribund patient recuperated under transfusion of blood, allowing measures to expel the tapeworm, after which the blood returned rapidly to normal range. The eosinophils never surpassed 3 per cent., and the urobilin excretion was peculiar.

Norsk Magazin for Lægevidenskaben, Oslo

86: 637-756 (July) 1925

Medicine in Norway in the Fourteenth Century. I. Reichborn-Kjennerud.—p. 637.
*Pregnancy Nephritis. S. Kjelland Mørdre.—p. 654.
*Treatment of Gap in the Urethra. S. Widerøe.—p. 682.
*Tetany and Rickets. L. Salomonsen.—p. 685.
Erythema Nodosum. K. Moe.—p. 696.
Some Cases of Amebic Dysentery. J. A. Voss.—p. 703.
*Sarcoma at Site of Osteomyelitis. F. Harbitz.—p. 708.

The Ambard Urea Excretion Coefficient.—Mørdre discusses the Ambard index in relation to pregnancy kidney. The findings and other data are tabulated from sixteen persons with apparently sound kidneys, thirty with various forms of kidney disease, and 125 with pregnancy kidney. The higher Ambard coefficient in the pregnancy kidney cases is due to functional disturbances in the acute cases, sustaining the assumption of vascular spasm in the kidneys. There is usually hypertension in these cases. The Ambard index shows that pregnancy nephritis includes cases of normal kidney functioning and of actual nephritis, with all their intermediate stages.

Ekehorn's Method of Closing a Defect in the Urethra.—Wilderøe reports two cases, emphasizing the advantages of this method. The suspensory ligament of the penis is reached and mobilized through an incision above the symphysis. This allows the stumps of the urethra to be brought in contact, with no strain on the suture. The position of the penis thereafter is somewhat altered.

Tetany and Rickets.—Salomonsen reports four cases which confirm that the real instability of the calcium content of the blood, which characterizes tetany, disappears when cod liver oil is given. Even intercurrent fever does not then modify the calcium content of the blood. He mentions further the constant increase in the phosphorus content of the blood as rickets is subsiding. The curves in four cases show the parallel rise in calcium and phosphorus.

Sarcoma in Connection with Chronic Disease.—Harbitz gives illustrations of a case in which a sarcoma developed at the site of an acute suppurating osteomyelitis, following a trauma, in a boy of 13. In another case, the sarcoma developed in the stump after amputation of the arm, for chronic osteomyelitis, in a man of 70. He accepts a probable causal connection with the trauma in both instances.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 85, No. 12 — Chicago, Illinois — September 19, 1925

UNPERFORATED ULCERS OF TERMINAL ILEUM, SYMPTOMATICALLY SIMULATING APPENDICITIS *

J. SHELTON HORSLEY, M.D.
RICHMOND, VA.

As Hertzler has remarked, it seems strange that a viscus capable of such a wide range of locality as the appendix will, when inflamed, always have a point of greatest tenderness over the so-called McBurney's point, about midway between the right anterior superior spinous process of the ilium and the navel. He says the answer is that it does not. While the normally placed appendix gives pain at this point, the appendix abnormally situated shows maximum pain and tenderness elsewhere.

The symptoms of a typical uncomplicated case of acute appendicitis permit little diagnostic doubt. The rather sudden pain beginning in the epigastrium or around the navel, and the general abdominal discomfort with pain and muscle spasm eventually settling in the right iliac fossa, are almost pathognomonic of appendicitis. The sequence of the pain in the epigastrium or around the navel and later in the right iliac fossa is important. These symptoms are almost always accompanied by nausea and often by vomiting. A rise of one or more degrees in temperature is frequent, though not constant. At first, the pulse is usually not materially quickened. In early cases, the white cell blood count often cannot be considered of much diagnostic significance except in conjunction with the other symptoms. Not infrequently, mild appendicitis will give a high white cell count, while a gangrenous appendix, particularly in elderly patients, may show no marked change in the total white cell count and but little rise in the polymorphonuclears. In infants and young children, too, the blood count is not always suggestive of the disease. A rising white cell count, however, after pain and tenderness have developed, denotes progress of the inflammation.

Appendicitis may occur without these typical symptoms. In such instances it will usually be found that the appendix is not in what is considered its normal position. An inflamed appendix at the bottom of the pelvis gives symptoms referable to the median line, to the pubic region or to the left side. When the appendix is adherent to the bladder, there is often painful and frequent urination. An incompletely rotated cecum will cause the pain of appendicitis around the gallbladder. A retrocecal appendix, when inflamed, usually produces but little muscle spasm, with the pain near the anterior spine of the ilium, along the right iliac crest and in the back and the thigh. The thigh is often flexed, which may occur with the appendix in a normal position.

Pneumonia, especially in children, stone in the ureter or kidney, ptosis of the colon, sacro-iliac disease, spondylitis, a low perinephritic abscess, a pyogenic abscess in the psoas muscle as pointed out by LeRoy Long,[1] may produce symptoms difficult to distinguish from those of atypical appendicitis. Many of these diseases can be differentiated by careful observation and by the roentgen ray. The symptoms, however, which simulate very closely those of appendicitis, and which are due to a lesion in the adjacent intestinal tract, are more difficult to interpret.

The three cases here reported gave rather clear symptoms of appendicitis.

REPORT OF CASES

Case 1.—Mrs. J. T. G., Jr., aged 36, white, who entered the hospital, Aug. 12, 1915, had had attacks of indigestion for fourteen years. When she was fatigued the pain would be worse, and she would have paroxysms of pain and gas formation. She always suffered from constipation. Between the attacks of indigestion there was no discomfort. Just before entering the hospital she had an attack of pain in the abdomen which was accompanied first by nausea and then by vomiting. In the previous attacks she had nausea but no vomiting. Her physician found spasm and tenderness in the lower part of the abdomen and made a diagnosis of appendicitis.

Operation, August 13, showed the appendix somewhat congested, and it was removed. On the ileum about 4 inches (10 cm.) from the ileocecal valve was a small congested and infiltrated area. This was thought to be an ulcer. The segment of ileum containing the lesion was removed. The stump of the ileum at the cecum was closed, and the upper end of the ileum sutured to the cecum by the end-to-side method.

The loop of resected ileum was about 5 inches (12.5 cm.) long, containing an irregular ulcer about one-half inch (1.25 cm.) by 1 inch (2.5 cm.) in diameter. There was no evidence of other ulceration (Figs. 1 and 2). Microscopic examination of the margin of the ulcer showed leukocytic infiltration with areas containing epithelioid cells of different sizes. In these areas there was some tendency to degeneration. It appeared to be a tuberculous ulcer.

The patient made an immediate satisfactory recovery. May 16, 1925, she reported that her health was not very good. She had occasional pain in the left lower part of the abdomen, which she says was the chief site of her discomfort before the operation.

Case 2.—Mrs. R. E. B., aged 30, white, the mother of three children, entered the hospital, March 25, 1919. About two years before this, May 3, 1917, on account of placenta praevia, I had performed a cesarean section on her, from which she made an uneventful recovery. About a year and a half after

---

* From the Surgical Department of St. Elizabeth's Hospital.

* Read before the Section on Surgery, General and Abdominal, at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Long, LeRoy: Acute Nontuberculous Ilio-Psoas Abscess, South. M. J. **18**: 198 (March) 1925.

the cesarean section the patient began to have discomfort and pain located chiefly in the right iliac fossa. In December, 1918, the attacks became sharper, coming on suddenly without regard to meals, sometimes in the day and sometimes at night. They were quite severe and would occur every week or two, compelling her to go to bed. The pain was made worse by exertion. She would be nauseated, but would not vomit. The patient entered the hospital with a diagnosis of appendicitis. There was pain and spasm in the right iliac fossa. The blood count showed 9,400 leukocytes and 69 per cent. neutrophils.

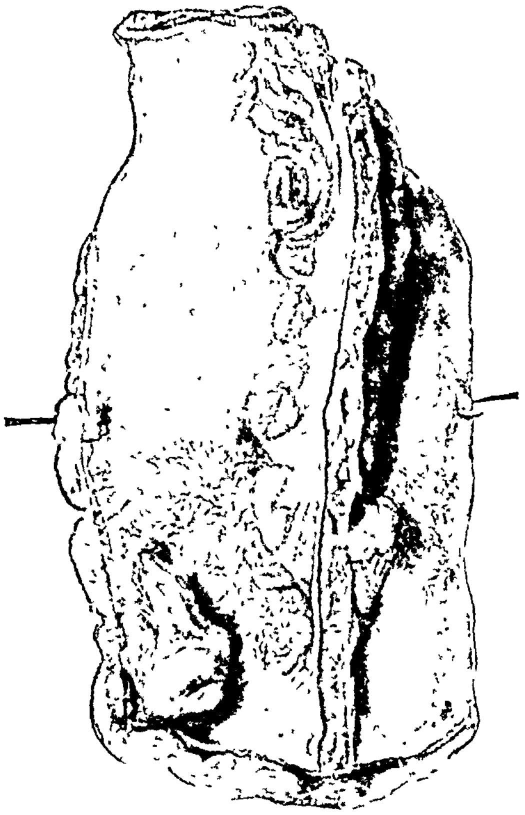


Fig. 1 (Case 1).—Segment of resected ileum, about 5 inches (12.5 cm.) in length: Near the lower end of the segment there is a congested and infiltrated area situated chiefly on the lateral aspect of the bowel; just below this is the upper end of the ileocecal fold.

March 27, 1919, she was operated on under ether anesthesia. On account of the previous cesarean section and the possibility of adhesions, the incision was made just to the right of the midline. There were a few adhesions of the intestine and of the omentum to the lower part of the abdominal scar. The appendix was rather large and was removed. Along the free border of the ileum, about an inch from the ileocecal valve, was a limited, thickened and infiltrated area. This seemed to indicate an ulcer. There was no evidence of ulceration elsewhere. The segment of the ileum containing the lesion was resected. As the ulcer was very close to the ileocecal valve, the valve was cut away and the ileum was implanted into the cecum at this point by the end-to-side method. An enterostomy was made in the cecum by introducing a small rubber catheter, which was brought out through a stab wound in the right iliac fossa. The right ovary, which was somewhat prolapsed, was sutured to the right cornu of the uterus.

The specimen consisted of the segment of the ileum and of the appendix. The appendix was 2 inches (5 cm.) long, considerably larger than normal, with no evidence of conges- tion or adhesions. On section, there was a slight thickening of the wall toward the tip; the mucosa appeared normal. The segment of the ileum was 5 inches (12.5 cm.) long, and externally near the lower end there was a thickened and infiltrated spot resembling the external appearance of a duo- denal ulcer. The mucous membrane was normal except at the lower end. At this point there was a scar in the mucosa, showing partial healing of an ulcer, and adjoining the proximal side of the scar was an ulcer about a half inch (1.25 cm.) in diameter. The margins were sharp but not firm (Fig. 3). Microscopic examination showed leukocytic infiltration and areas of necrosis, epithelioid and giant cells typical of tuberculosis (Fig. 4).

The patient made a satisfactory operative recovery and was discharged from the hospital four weeks later. Since then her health has improved and she attends to her normal duties, though she still has occasional discomfort and some pain, particularly in the right leg and in the abdomen.

Case 3.—G. B., a boy, aged 10, white, admitted to the hospital, Jan. 17, 1923, with a diagnosis of acute appendicitis, for several months had had short attacks of pain in the abdomen with nausea, described as "stomach aches." January 16, the day before admission, he was nauseated and vomited, and complained of pain over the entire abdomen, which was more marked in the right iliac fossa. On admission there was pain and tenderness with muscle spasm in the right iliac fossa. The urine was normal. The blood showed 9,000 leukocytes with 63 per cent. neutrophils.

About an hour after admission to the hospital, under nitrous oxid-ether anesthesia, the usual McBurney incision was made and a small amount of clear fluid was found free in the peritoneal cavity. The appendix was somewhat congested and was removed. The ileum was felt to be enlarged and the incision was extended in the direction of the muscle fibers so that the cecum and ileum could be delivered into the wound. The cecum was slightly congested, but otherwise appeared normal. The terminal ileum, however, was enlarged, thickened and hyperemic, and formed a somewhat spindle-shaped soft mass that gradually faded into the normal ileum above, and appeared to terminate somewhat abruptly at the ileocecal valve. There were many enlarged soft lymph nodes. It was thought that the condition was either tuberculosis or possibly sarcoma. The terminal ileum, cecum and part of the ascending colon were resected, and the ileum was united to the colon end-to-end. A half inch of the stump of the ileum was invaginated into the colon to simulate the ileocecal valve. An oblique enterostomy with a soft rubber catheter, following the principle of Coffey, was made in the ileum just above the site of the anastomosis. The tip of the catheter rested within the colon.

The specimen consisted of the appendix, and of the terminal ileum, cecum and a portion of the ascending colon. The appendix was 3½ inches (9 cm.) long, somewhat congested, and presented no evidence of adhesions. On section, the mucosa was slightly swollen and was congested, particularly in the distal third. There was no ulceration. The appendix appeared to have been secondarily involved by the hyperemia. The length of the specimen of ileum, cecum and colon was 12 inches (30 cm.). The cecum and colon were 3 inches (7.5 cm.) long, and the ileum 9 inches (22.5 cm.). The last 3 inches of the ileum were greatly hypertrophied and enlarged. Above, it gradually blended into what appeared to be normal ileum about 6 or 7 inches above the ileocecal valve (Fig. 5).

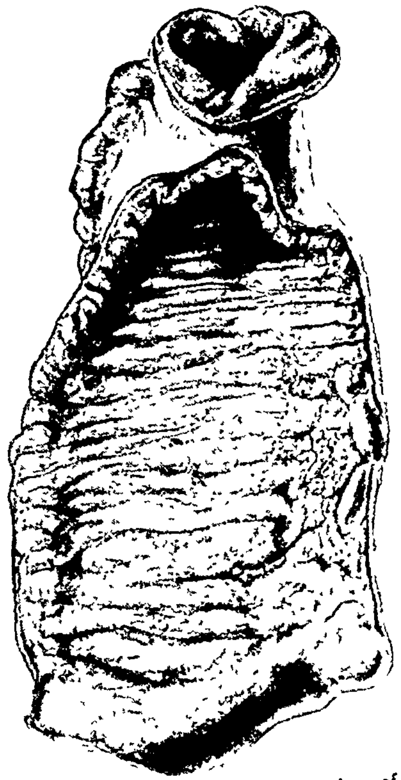


Fig. 2 (Case 1).—Internal view of segment of ileum shown in Figure 1. The contour of the ulcer is irregular; histologic examination of the margin showed the ulcer to be tuberculous.

In the mesentery were many enlarged lymph nodes, some of them an inch in diameter, which on section showed a few slightly yellowish areas not sharply marked. Most of the tissue of the lymph nodes was pinkish brown and seemed to be inflammatory hyperplasia. On section, the mucosa of the ileum showed numerous small yellow nodules that resembled the tubercles of tuberculosis. They were about one-twelfth inch (0.2 cm.) in diameter. The mucosa was greatly thickened. The lesions in the ileum extended to the ileocecal valve, but stopped sharply at this point. In the last 3 inches of the mucosa of the ileum there were superficial ulcers with a yellowish base. They seemed to have a slight tendency to undermine. The mucosa of the cecum seemed normal (Fig. 6).

About 3 inches from the ileocecal valve, the swelling and thickening gradually diminished. The mucosa even in this region contained some of the small yellowish nodules resembling tubercles, but there were no ulcers. At the upper end of the specimen, the bowel seemed to be approximately normal. Microscopic examination of sections taken from different portions of the mucosa of the ileum and from the lymph nodes did not show evidence of tuberculosis.

The tubercle-like nodules were localized areas of what seemed to be lymphoid tissue and leukocytic infiltration which practically displaced the epithelial lining and the glands of the mucosa (Fig. 7). Around these nodules there was columnar epithelium, beneath which and between the crypts was leukocytic infiltration. Some of the surrounding columnar cells seemed to have degenerated. At no place was there evidence of either malignancy or tuberculosis. It appeared to be a subacute inflammatory condition possibly due to some type of pyogenic bacteria. The section of the lymph nodes showed marked hyperplasia but no evidence of malignancy or tuberculosis (Fig. 8).

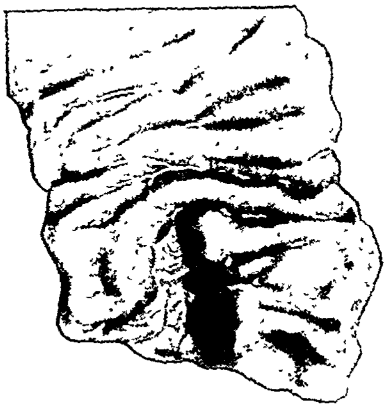


Fig. 3 (Case 2).—Portion of interior of specimen: An ulcer is at the lower end of the specimen; there is a scar showing partial healing along the distal margin of the ulcer; on the oral side of this scar there is an ulcer, oval and about a half inch (1.25 cm.) in the longest diameter; the margins are sharp and somewhat punched out, but not firm.

The patient made an uneventful recovery and was discharged from the hospital, Feb. 7, 1923. His father reported, May 9, 1925, that his son was in good health, going to school, and appeared to be as normal as any boy.

COMMENT

In two of these cases there was a solitary tuberculous ulcer; at least there was no evidence of an ulcer elsewhere. In the third case, the gross appearance resembled tuberculosis very much, and it was not until repeated histologic examinations were made and some of the tissue was examined by Dr. A. C. Broders of the Mayo Clinic, who was also unable to find any histologic evidence of tuberculosis, that I was convinced that the disease was not tuberculosis. On account of the multiplicity of the bacteria in the ileum, it seemed that cultures would not throw any light on the subject.

The moral of the story of these cases is a warning that has been frequently repeated, but is often ignored: The surgeon who opens the abdomen for appendicitis should be prepared to deal with any condition that he may find. If the appendix is easily removable, the operation requires no great amount of skill; but if there is an ulcer of the duodenum, a diverticulum of the cecum, or some affection more serious than simple appendicitis, the life of the patient is in jeopardy unless the training of the surgeon enables him effectively to deal with these diseases. The obvious treatment for chronic ulcers of the terminal ileum is excision, and excision of an ileac ulcer usually means resection of the bowel.

The technic to be used in resection of the terminal ileum depends largely on the local conditions. As has been pointed out elsewhere,[2] the physiologic function and the contents of the lower ileum are quite different from the function and the contents of the upper jejunum. The sensitive and active peristalsis of the upper jejunum and the small amount of bacteria in this portion of the bowel demand different methods of procedure from those indicated in the rather slowly acting ileum with contents filled with bacteria of great virulence. Alvarez[3] has shown the marked difference in the behavior of the intestinal muscle in these two regions. Obstruction of the lower ileum, if not accompanied by gangrene, is withstood better than a similar obstruction of the upper jejunum. The work of Foster and Hausler[4] has shown that, if an abundance of water is administered, an intestinal obstruction without marked interference with the circulation of the affected bowel may be borne much longer than is usually believed. In the upper jejunum, however, simple

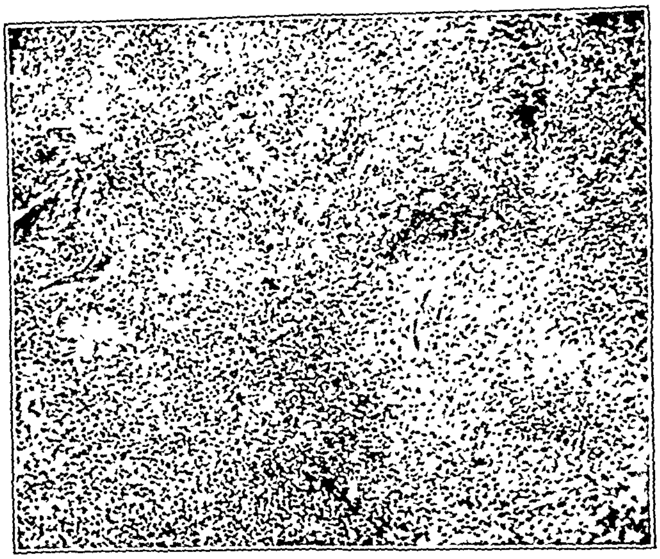


Fig. 4. (Case 2).—Section from margin of ulcer shown in Figure 3: On the left are two intestinal glands; on the right is an aggregation of atypical giant cells with epithelioid cells that seems to constitute a tubercle; in other regions of the field, particularly along the center, is extensive leukocytic infiltration. Deeper in the microscopic section, but not shown, are typical tubercles with large giant cells having numerous nuclei along the periphery. The region here photographed was selected, however, because it showed, in the same field normal intestinal glands and tuberculous tissue. Reduced from a photomicrograph with a magnification of 110 diameters.

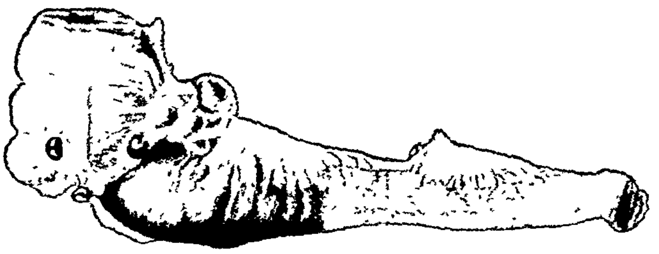


Fig. 5 (Case 3).—Terminal ileum, cecum and ascending colon: The terminal ileum presented a diffuse, somewhat spindle-shaped enlargement; there were many greatly enlarged soft lymph nodes; toward the ileum, the lesion seems to fade off into normal tissue. Greatly reduced from the drawing.

---

[2] Horsley, J. S.: Operative Surgery, Ed. 2, St. Louis, C. V. Mosby Company, 1924, pp. 669-674.

[3] Alvarez, W. C.: The Mechanics of the Digestive Tract, New York, Paul B. Hoeber, 1922, p. 37.

[4] Foster, W. C., and Hausler, R. W.: Studies on Acute Intestinal Obstruction, I, Different Types of Obstruction Produced Under Local Anesthesia, Arch. Int. Med. 34:97-107 (July 15) 1924.

obstruction[5] quickly gives rise to reverse peristalsis and vomiting, with rapid dehydration, a sudden rise in the nitrogen blood urea, and a drop in the blood chlorids.

These differences show that in resection of the lower ileum it is important to use a technic that will prevent contamination even though it gives a lumen of the bowel not so abundantly open as would be advisable in the upper jejunum. In the upper jejunum, with the importance of an unrestricted caliber and with but few bacteria present, the anastomosis is best made by an end-to-end method which by accurate suturing will produce a small diaphragm and close approximation of the bowel structures. While, of course, soiling of the surrounding tissue with bowel contents should always be avoided, it is not usually serious in this location. In the lower ileum and in the large bowel, however, the slightest soiling is a grave complication likely to be followed by severe infection. As the ileac muscular coat is not so sensitive as the muscle of the upper jejunum, a small amount of narrowing of the lumen by a wide diaphragm may be permitted.

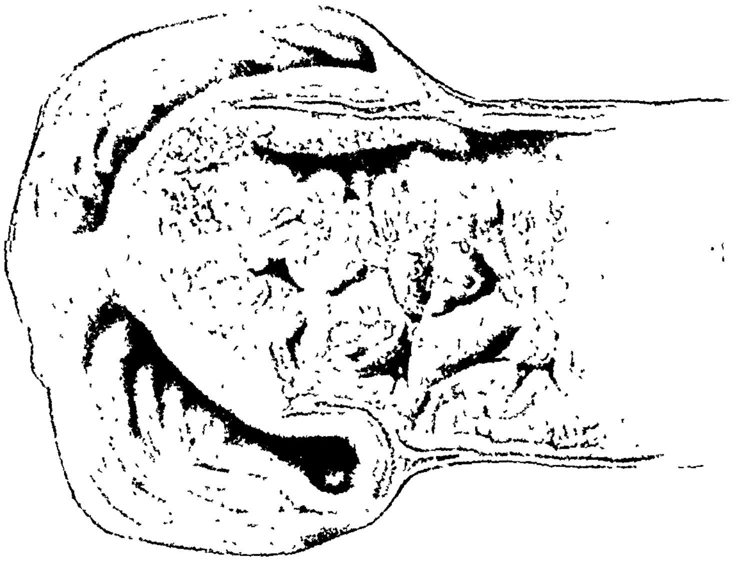


Fig. 6 (Case 3).—Part of interior of specimen, an external view of which is in the preceding figure: The mucosa of the terminal portion of the ileum is shown; it is swollen, covered with many small tubercle-like nodules, and there are superficial ulcers; the lesion terminates sharply at the ileocecal valve; the mucosa of the cecum seems normal.

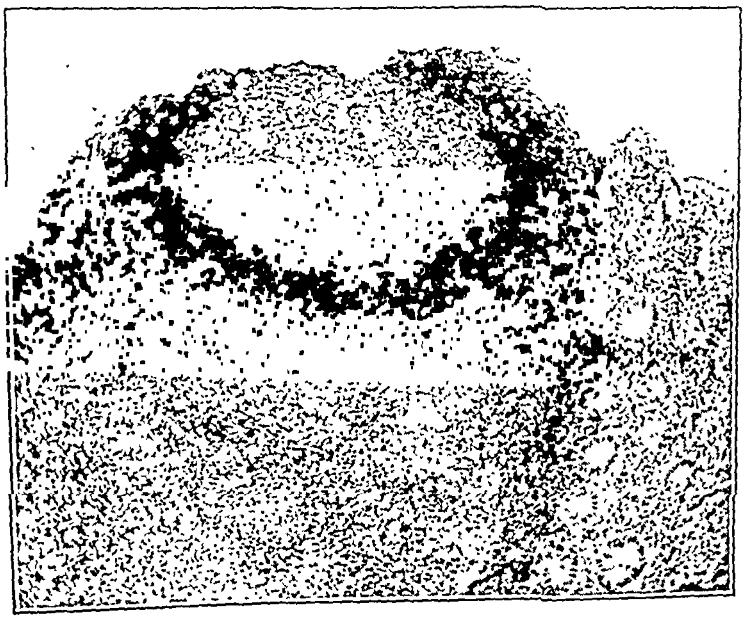


Fig. 7 (Case 3).—Section through one of the tubercle-like nodules: Lymphoid tissue and tissue with intense leukocytic infiltration seem to have displaced the normal epithelial structure of the mucosa; on the right is mucosa somewhat infiltrated, but containing normal glands; there is no evidence of tuberculosis. Reduced from a photomicrograph with a magnification of 110 diameters.

The technic of Kerr is excellent in many of these cases of resection of the lower ileum. By this method, after dividing and tying the mesentery of the loop to be removed, each end of the loop is clamped with crushing forceps, applied close together, and divided with the electric cautery, which sterilizes that portion of the stump of the bowel within the grasp of the forceps. A basting stitch is placed, and the end of the bowel is automatically inverted by traction on the basting stitch as the clamp is removed. The two ends of the bowel are sutured together, and then the basting stitches are removed. The lumen is opened by invaginating the intestinal wall with a finger and a thumb on opposite sides of the anastomosis. The contents of the bowel cannot infect the surrounding tissue when this technic is properly carried out.

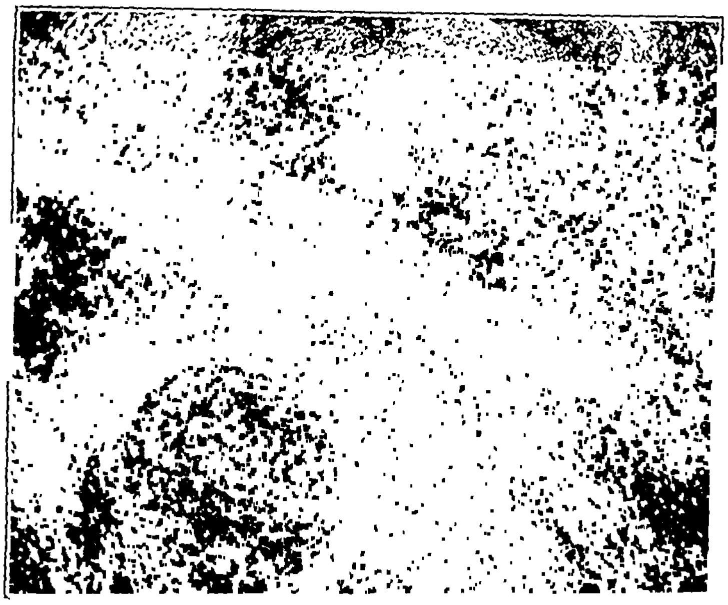


Fig. 8 (Case 3).—Enlarged lymph node from the mesenteric border of the terminal ileum shown in Figure 5: It has the structure of simple inflammatory hyperplasia without evidence of malignancy or tuberculosis. Reduced from a photomicrograph with a magnification of 110 diameters.

In resection of the lower ileum and the cecum, this technic is very satisfactory, particularly if the ileum is invaginated into the colon for from one-half to 1 inch in order to simulate the ileocecal valve. This invagination can be done even when there is considerable fat in the mesentery, and adds to the safety of the operation in preventing leakage. When, however, there is much mesenteric fat and a loop of the ileum is to be resected and the ileum united end-to-end, the Kerr technic will not permit sufficiently accurate approximation along the mesenteric border even though the bowel be so rotated that the two mesenteric borders lie side-by-side instead of opposite each other. On one side at least, the sutures must go through the fat in the mesentery in order to catch the bowel wall, and the inclusion of the bulky fat in the grasp of the intestinal suture will probably cause breaking down of the fat and leakage, as I know by experience. In such cases it is safer to close the bowel end by a basting stitch after the Kerr technic, pucker up the basting stitch, tie the two ends together, and place an additional suture. Then, after stripping each stump of the bowel free from fecal contents, soft-bladed intestinal clamps are applied, and a lateral anastomosis is made. When the lumen of the bowel is opened in a lateral anastomosis there is a chance of contamination by fecal contents, but by properly protecting the surrounding tissues with moist gauze this chance should be reduced to a minimum. If contamination does occur, it will be on the smooth surface of the peritoneum, which is not so serious as in the fatty areolar tissue of the mesentery.

---

[5] Haden, R. L., and Orr, T. G.: Use of Sodium Chlorid in Treatment of Intestinal Obstruction, J. A. M. A. **82**: 1515 (May 10) 1924.

In order to remove all the diseased tissue along with the ulcer, an inch or more of apparently healthy bowel adjacent to the ulcer should be included in the resected segment. If the ulcer is near the ileocecal valve, the distal stump of the ileum will be too short to permit anastomosis. In such a case, the ileum may be excised flush with the cecum, and the upper end of the ileum implanted in this wound; or, what is probably better, the wound at the ileocecal valve may be sutured and the ileum implanted end-to-side in an incision made in the anterior surface of the cecum. By the latter method, the raw surface left by the mesocecum is avoided.

If there has been obstruction, and the bowel above the anastomosis is dilated, a catheter enterostomy following the principle of Coffey should be done. If, however, there is an unperforated ulcer with the symptoms of appendicitis and without obstruction, and the union of the ileum after resection has been satisfactorily accomplished, enterostomy will probably be unnecessary. Whenever the cecum is resected along with the ileum and an end-to-end union is made, invaginating the ileum into the stump of the colon, a catheter enterostomy in the ileum from 4 to 8 inches from the site of the resection should be done. This provides for the exit of gas and liquid feces, gives physiologic rest, and so promotes healing.

617 West Grace Street.

ABSTRACT OF DISCUSSION

Dr. Albert J. Ochsner, Chicago: We have gotten into the way of looking at appendicitis as a minor operation. That is a great mistake. The appendix, when there is nothing wrong with it, can be taken out by any one, but when there is something the matter, as in the cases described by Dr. Horsley, it requires the very highest type of surgeon to take care of the case properly. Regarding the location of the pain, it has been my experience that when there has been an involvement of a portion of the peritoneum either behind the cecum or up under the gallbladder or down in the pelvis, the classical symptoms disappear and pain is located where the peritoneum not directly connected with the appendix has been involved. Singularly enough, in my community these cases that Dr. Horsley has described have become very rare for a number of years because all the milk that is used in Chicago has been pasteurized and we no longer get these tuberculous complications except in cases of pulmonary tuberculosis. We get no more cases from Wisconsin, for instance, because there the farmers are careful not to have cows with tuberculosis. In Illinois we are getting better. The farmers are beginning to take care, but we still occasionally get cases from Illinois and Michigan and some other surrounding states. The importance of tuberculosis of the ileum, which Dr. Horsley has spoken of, is very great, especially in the vicinities in which the farmers are not careful to eliminate tuberculosis from their herds and in places where the health departments do not insist on having the milk pasteurized. The other very important matter that Dr. Horsley has referred to is the matter of real surgery. In the three cases that he described, each one, in order to be treated properly, had to have a different method applied. Operation in all could have been performed in the same way, but the results would have been unsatisfactory. If this complication or other complications, such as gallstones or acute appendicitis, occurs with ulcer of the duodenum, and this has happened a number of times in my personal experience, the surgeon must be able to discover that complication and after he has discovered it he must be competent to take care of it.

PULMONARY TUBERCULOSIS

PROLONGED REST AND THE ABSORPTION OF DEPOSITS *

GERALD B. WEBB, M.D.
COLORADO SPRINGS, COLO.

Rest is specific for the cure of most active tuberculous lesions. It is granted that many patients with pulmonary tuberculosis have appeared to recover without rest. Credit is due surgeons for the first complete demonstration in joint tuberculosis of the principles of rest, and for their perception that prolonged rest was necessary for complete cure with the absorption of deposits and the reconstruction of damaged structures.

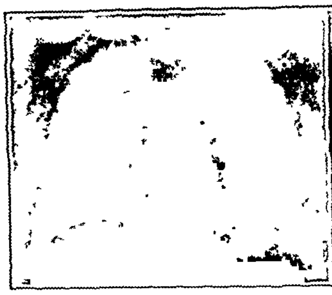


Fig. 1 (Case 1).—Appearance of chest in 1919: normal except for a small, partly calcified spot at the left hilum.

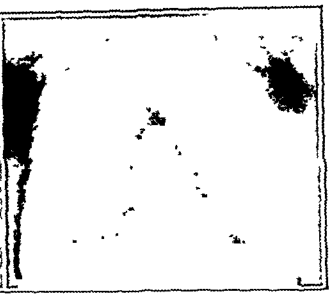


Fig. 2 (Case 1).—In 1922: small calcific spots in fourth interspace on right, and heavy deposits at right hilum.

Physicians, in prescribing for patients with pulmonary tuberculosis, have been slow to apply correct principles of rest to lungs which "move" more than a thousand times an hour. Pulmonary tuberculosis is liable to relapse in many instances because rest, prolonged and as complete as possible, is not continuous. In former publications I have called attention to the advantages of postural rest, and in the cases of bilateral apical disease, of the application of shot-bags. Artificial pneumothorax has once more taught physicians the need for prolonged rest in pulmonary tuberculosis. Numerous patients in whom lung collapse was maintained for too short a time (less than three to five years) are now returning for thoracoplastic operations. Such operations emphasize again the value of prolonged rest.

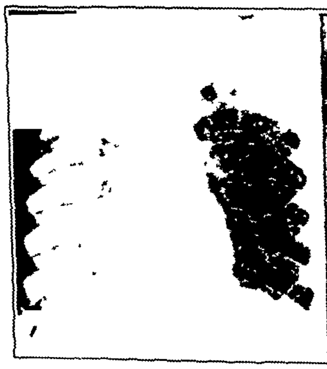


Fig. 3 (Case 2).—Appearance in 1915, when disease was detected.

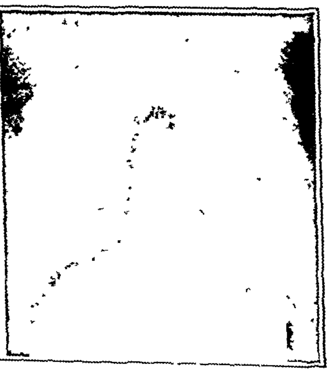


Fig. 4 (Case 2).—Almost complete absorption of lesion in 1923.

The healing of first infection (childhood) in pulmonary tuberculosis is accompanied by calcification of the lesions.

---

* Read before the Section on Practice of Medicine at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

Case 1.—G. R., a boy, aged 5, in whom there was no evidence of malnutrition, had a persistent slight fever. In 1919 (Fig. 1) the chest appeared normal, except for one small, partly calcified spot at the left hilum. Complete rest was given one year and partial rest two years. In 1922 (Fig. 2) there were small calcified spots in the fourth interspace on the right, and heavy calcific deposits at the right hilum. The boy was in excellent health.

Pulmonary tuberculosis in the adult is always accompanied by evidence of preceding calcified lesions (Opie). Until serial roentgen-ray studies were made, it was believed that pulmonary tuberculous deposits always became replaced by fibrous or calcified structures. We now know that in secondary lung infections of experimental animals, and also in phthisis, the actual absorption of lesions does occur. Amberson has summed up the matter thus: "The inflammatory or exudative type of tuberculous lesion may become completely removed by absorption. . . . The relative possibility or frequency of absorption of caseous residues requires further research."

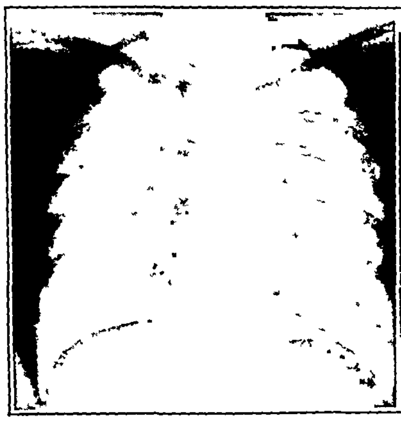


Fig. 5 (Case 3).—Appearance in 1919: normal except for slight bilateral calcific hilum deposits

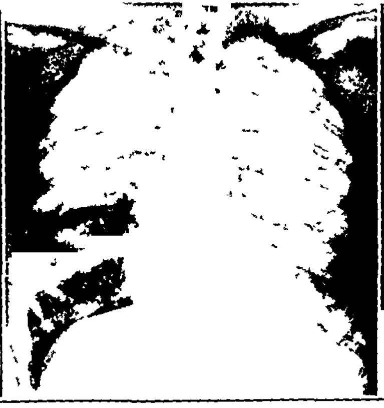


Fig. 6 (Case 3).—In 1921: presence of heavy bronchopneumonic shadow in right middle and lower lobes

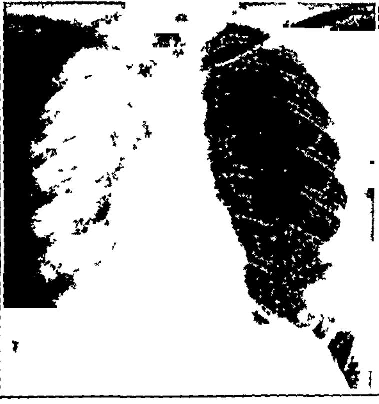


Fig 7 (Case 3).—In 1922 evidence of progressive absorption of calcific deposits

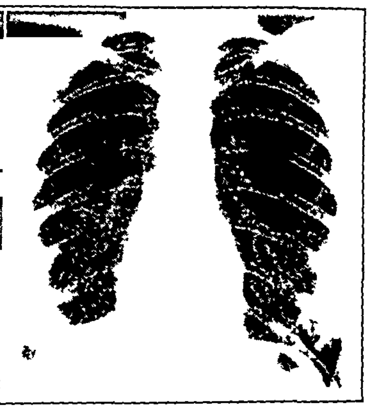


Fig 8 (Case 3).—In 1924: almost complete absorption of the calcific deposits.

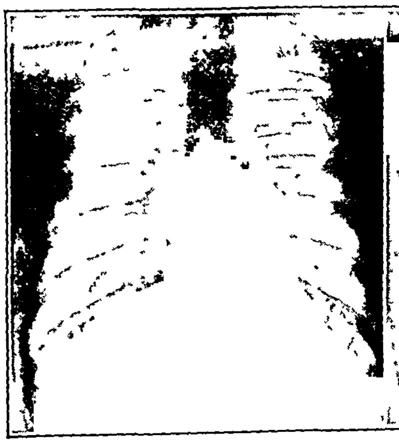


Fig. 9 (Case 4).—Appearance in 1921: lesion at left apex, with a small ring shadow.

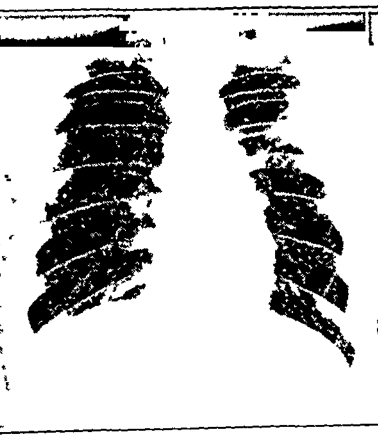


Fig. 10 (Case 4).—In 1922: marked spread of the disease below the former area.

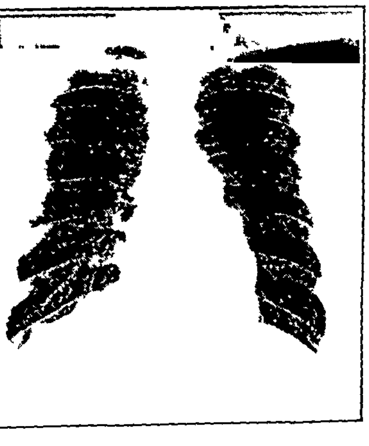


Fig. 11 (Case 4).—In 1924: clearance of all lesions after postural rest.

The accompanying illustrations, accompanied by brief case histories, clearly show that massive exudative tuberculous lesions have been absorbed. Some of the illustrations suggest that caseous residues have been replaced by what appears to be healthy lung structure.

Case 2.—A. C., aged 25, in whom the disease was active, had hemorrhage and tubercle bacilli were demonstrated in the sputum. The patient's mother died of pulmonary tuberculosis. There were bilateral apical medium râles. The first rest regimen was not thorough. Several relapses occurred. A more complete regimen was instituted. Figure 3 was taken in 1915, at the time the disease was detected; Figure 4, in 1923, showing almost complete absorption of the lesion. No râles were now present.

Case 3.—P. G., aged 18, seen in June, 1919, complained of frequent headaches and excessive sweating of the palms. A brother had active pulmonary tuberculosis. The mother had chronic pulmonary tuberculosis. Figure 5, taken in 1919, appears normal but for slight bilateral calcific hilum deposits. In 1921, the patient developed high fever, and hemorrhage occurred. Tests revealed tubercle bacilli. There was a heavy bronchopneumonic shadow in the right middle and lower lobes (Fig. 6). The patient was given complete postural rest on the right side one year. There were râles over the lesion. Figure 7, taken in 1922, gives evidence of progressive absorption of the deposits. Partial postural rest and almost complete bed rest was given from 1922 to 1924. Figure 8, taken in 1924, reveals almost complete absorption of the lesions. The patient is in excellent health. Exercise is strictly limited. There has been no sputum and no fever for eighteen months. The pulse is still slightly accelerated. There are no râles.

Case 4.—H. R., aged 26, seen in May, 1921, had fever, hemorrhage, and tubercle bacilli in the sputum. Medium and coarse râles were heard at the left apex. Figure 9, taken in 1921, showed a definite lesion at the left apex, with a small ring shadow. The patient was unwilling to follow a proper rest regimen. In 1922, there was marked spread of the disease below the former area (Fig. 10). In 1924, after eighteen months of postural rest, there was clearance of all lesions (Fig. 11). There was no sputum, and there had been no fever for one year; the pulse was still slightly accelerated. Râles were few and inconstant.

Case 5.—A. I., aged 35, seen in June, 1922, had fever, tubercle bacilli in the sputum, and small hemorrhage. Râles were heard at the right apex. There was a small definite lesion at the right apex (Fig. 12). The patient returned to a clerical occupation after nine months in an Eastern resort. In 1923 there was massive spread of the disease (Fig. 13). Medium and coarse râles were heard generally over the right side. In 1924, there was partial clearing of deposits (Fig. 14) after one year of postural rest. Now there is almost complete disappearance of the former massive deposit (Fig. 15). There has been no sputum and no fever for one year. The pulse is normal, and there are no râles.

In some cases with the absorption of lesions a complete disappearance of râles is noted. In other cases, râles remain or are inconstant, possibly owing to a bronchiolectasis.

The lesson to be learned from such cases is the lesson the surgeons have long since learned, that splints should not be taken off as soon as a sinus heals or a joint appears to be cured.

Rest in pulmonary tuberculosis should be prolonged many months after the temperature and pulse have become normal and sputum has disappeared. The tuberculous deposits shown in the illustrations have in general started to clear away after six months of rest, but have not been completely absorbed until from two to three years of rest.

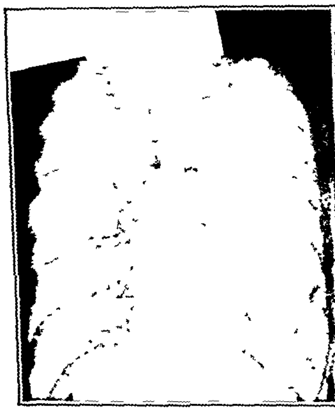


Fig 12 (Case 5).—Appearance in 1922 small lesion at right apex.

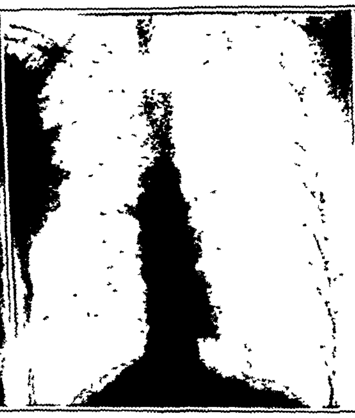


Fig. 13 (Case 5).—In 1923: massive spread of the disease.

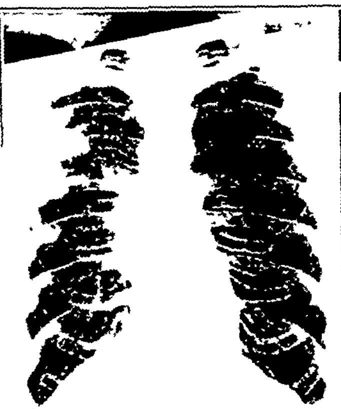


Fig. 14 (Case 5).—In 1924: partial clearing of deposits.

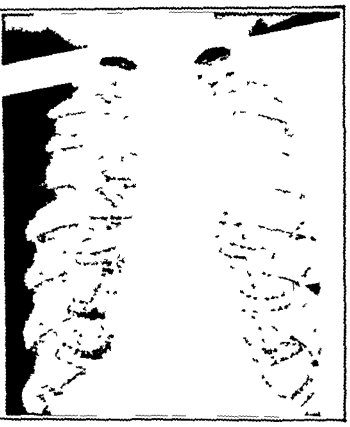


Fig. 15 (Case 5).—In 1925: almost complete disappearance.

ABSTRACT OF DISCUSSION

Dr. F. M. Pottenger, Monrovia, Calif.: Dr. Webb has emphasized three of the most important points in tuberculosis: (1) the curability of tuberculosis; (2) the fact that time is a very important factor, and (3) the importance of rest in aiding cure. In the minds of most people, including physicians, tuberculosis is still branded as a more or less hopeless disease. In the minds of men who are working intelligently with it, it is recognized, particularly if the disease can be treated early, that it is a very hopeful disease. Tuberculosis shows a marked tendency to heal in all stages. Time is essential. Tuberculosis is a chronic infection. Its healing requires months and years—not days and weeks. The time required varies according to the nature of the disease; the resistence shown by the patient, and the cooperation which he gives in treatment. In many instances in which there is a failure in results in six months, success could be attained in nine months or a year. In many instances in which there is a failure in results in a year, success could be attained in two years, three years or longer. Rest is one of the most important factors in treatment. The importance of rest is not sufficiently recognized, and a physician who would advise his patient not to take tuberculin or have his lung collapsed under any circumstances would in all probability suggest to him that he go out in the open and exercise. More patients kill themselves by exertion at the time when rest is indicated than by any other measure. The meaning of rest should be understood. It is not simply lying in bed, but it is a physical and mental relaxation. Lying in bed and visiting, or studying, or playing games cause an expenditure of a great deal more energy than lying in bed quietly, resting. Rest means keeping the patient at the point of utilizing the least possible of mental and physical energy. To illustrate the importance of physical rest, the heart of a person weighing 150 pounds (68 kg.), lying quietly in bed, does work in twenty-four hours equivalent to lifting a one ton weight 152 feet. Walking running, or engaging in strenuous exercise doubles or quadruples this during the time the exertion is taking place, all of which calls for a more hurried circulation, deeper and more rapid breathing, and consequently more exercise for the lung. It also produces a condition of suboxidation, which favors necrosis. Mental rest is just as important as physical. A patient can lie in bed and fret and worry and be discontented and unhappy and use up as much energy as though he were exercising. As regards the disappearance of lesions in the lung, we now know that marked lesions will disappear entirely. This is something that we did not know a few years ago. We expected to find extensive scars present under all conditions where an extensive tuberculosis had healed; but such is not the case.

Dr. S. Adolphus Knopf, New York: I agree absolutely with Dr. Webb's conclusions. It may be of interest to hear of a method of local rest which can be given to the lung, in addition to general rest, by a controlled diaphragmatic respiration which consists in teaching the patient to breathe mainly with the diaphragm, this because the vast majority of tuberculous lesions are found in the upper lobe. Granting that the average tuberculous patient breathes at least twenty times a minute, by reducing the number to ten (and some patients can do better), and resorting to this type of respiration during five hours, not necessarily consecutively, the patient may reduce the number of his respirations by 3,000 during that time and save his lungs 6,000 excursions. The modus operandi is simple but must be explained to the patient. The latter should be placed in a semireclining position, at an angle of about 30 degrees, which requires least work for the heart. He should relax as much as possible and be told to imagine that the respiratory movement begins in the toes of his right foot, the inhalation gradually traveling upward as far as the diaphragm on the right side, then crossing over to the left, and gradually descending during exhalation to the left foot. While this breathing upward from the toes to the abdomen is merely imaginary it results in a diaphragmatic respiration and whatever quantity of air is inhaled passes mainly through the lower portions of the lungs while the upper portions are, if not at complete, at least at relative rest. The patient must, of course, concentrate his mind on this procedure. He should not be thinking of anything else during this rest breathing period. The surest way to teach the method correctly is to ask the patient, during inhalation and during exhalation as well, to follow the physician's hand with index finger pointing as it moves in the upward direction from the right toes over to the left side of the diaphragm, then downward to the left foot. When the finger has arrived at the left side of the diaphragm, the patient begins to exhale during the downward movement of the finger. The relation of the duration of the two acts should be as 5 to 4, 5 for inhalation and 4 for exhalation. At the end of exhalation, the patient may hold his breath a moment or two before beginning a new cycle. This holding of the breath reduces still more the number of respirations each minute. The psychologic element in this procedure is most important. To tell him that whenever unhappy thoughts come to him he should resort to controlled diaphragmatic respiration, realizing that with the saving of every respiratory movement he is adding to his general rest and so much more to his chances of his cure, will be a good help. He must concentrate his mind on this method and cannot think of anything else when doing it.

Dr. Henry Sewall, Denver: Rest is a positive biologic attitude. In order to have absolute rest we must have the nurse at hand to give every mouthful of food or fluid, through a tube if necessary, and to scold the patient if he attempts to try any muscular exercise. It takes a spirit of unlimited doggedness, patience and faith on the part of both the physician and the patient to carry out such a course of treatment. But the fight is only beginning when the temperature becomes normal. The physician will need all his judgment, resourcefulness, and all the confidence of the patient in the period that follows. We know that supervision for from three to five years is often not too much. The Denver Sanatorium Association investigated the tuberculosis mortality in Colorado covering a period of thirteen years ending in 1920. Nearly 24,000 deaths were tabulated. This number represented a mortality from tuberculosis of about 249 per hundred thousand population in Colorado, almost the highest in the United States. But when these data were analyzed it was found that nearly 45 per cent. of the deaths were of immigrants who had sojourned less than one year within the state. And of the number dying within this period nearly 59 per cent. died within three months of their advent in Colorado. Two conclusions are obvious: 1. A large proportion of tuberculous invalids are kept at home until in a practically hopeless condition before seeking Colorado. 2. Either through necessity or lack of good judgment the invalids fail to get the advantages of rest, which in so stimulating a climate is of paramount importance until, at least, thorough acclimatization has been acquired. An investigation of tuberculosis mortality from disease acquired in Colorado-born subjects showed that such deaths represent only 30.8 per hundred thousand of the population.

Dr. Gerald B. Webb, Colorado Springs, Colo.: We must not be deceived by a drop in the patient's temperature. That is only the beginning of the fight. The patient should rest one year, or two, or sometimes even three years, but we must remember that "a mind unoccupied is a mind distressed." The patients must be happy while resting.

Colloidal State of Matter.—When we crush and grind the ordinary coarse matter which we can see and handle, we can break it up into smaller and smaller particles. At first these particles can still be seen by the unaided eye; but, as the process of grinding is continued, they become so small that they can be distinguished only with the help of a lens or of a microscope. One can carry the process of subdivision of matter still further, so that the particles become too small to be seen even with the aid of the most powerful microscope, and finally reaches the ultimate limit of subdivision, the molecule, beyond which farther subdivision is impossible without destroying the chemical nature of the substance. Since the smallest particle of matter directly visible under the microscope is perhaps about a thousand times larger than the simplest molecule, a considerable range of subdivision of matter lies between the limits of the microscopically visible and the molecular states; and it is to this intermediate zone that I have ventured to apply the term the "twilight zone of matter." It is to this range of subdivision of matter that, in more scientific language, the term "colloidal state" of matter is applied.—Findlay, Alexander: The Twilight Zone of Matter: *Science* **62**:192 (Aug. 28) 1925.

HEMATEMESIS

A PLEA FOR OBJECTIVE METHODS OF DIAGNOSIS *

CHEVALIER JACKSON, M.D., Sc.D.
GABRIEL TUCKER, M.D.; LOUIS H. CLERF, M.D.
ROBERT M. LUKENS, M.D.
AND
WILLIAM F. MOORE, M.D.
PHILADELPHIA

A series of 280 cases at the Bronchoscopic Clinic affords abundant illustrations of the well known errors incident to inferential diagnosis as to the source of blood issuing from the mouth, and illustrates how a positive diagnosis can be reached in practically all cases in which the blood comes from the food passages proximally to the pyloric antrum, with all the certainty afforded by direct inspection and, in suitable cases, by biopsy. Complete histories and the serologic and other tests in use by clinicians were made in all cases; but in this presentation everything that was negative or irrelevant will be omitted. Nine cases have been selected as illustrative of the most important points.

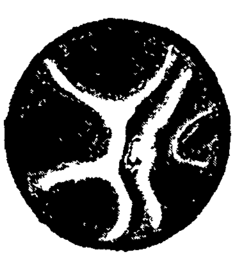


Fig. 1 (Case 1).—Esophagoscopic appearances of varicosities in the esophagus of a man, aged 50: The erosion in the vertical varicosity near the center of the sketch was the source of blood in this case of hematemesis.

Case 1.—*Hematemesis in a man, aged 50.* There was a history of gradual loss of weight and strength, slight difficulty in swallowing of six months' duration, meleña and occasional vomiting of dark, blood-tinged food containing free hydrochloric acid. The patient was sent to us for esophagoscopy and gastroscopy because of the diagnostic question arising from the fact that an abdominal exploratory operation done in another city by a very skilful surgeon was entirely negative. The surgeon's assistant had passed a stomach tube, which encountered obstruction low in the esophagus and had come back bloody. The patient had been told that he had cancer. A roentgen-ray examination by Dr. Manges revealed a slight narrowing of the esophagus in the lower third, at which point he diagnosticated a lesion that he felt could be the source of the hematemesis, but he stated that it had none of the radial characteristics of a malignant process. He also stated that there was no evidence of any lesion in the stomach. We did a diagnostic esophagoscopy without any anesthetic, general or local, for diagnosis. The patient had been given no food for twelve hours. On introduction of the esophagoscope, a considerable quantity of dark fluid with "coffee ground" flocculi welled up into the tube mouth, but quickly disappeared through the drainage canal of the esophagoscope under the suction of the mechanical aspirator. The esophageal mucosa was found normal until the diaphragmatic level was approached. Here we encountered the usual rounded folds, but a number of them were larger and darker than normal. A quantity of bright red blood was encountered at this point. After aspirating and mopping away the blood, we found the source of hemorrhage in one of the very dark folds.

---

* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

The duration of the esophagoscopy was three minutes, forty-one seconds. The esophagoscopic diagnosis was "bleeding varicosity of the hiatal esophagus." In the treatment of this case the patient was placed on a liquid, nonirritating diet by the family physician, who also carried out a course of salines with diuretic and other suitable adjuncts to deplete the portal circulation. This was probably the most efficient part of the treatment, but the patient was also given bismuth subnitrate dry on the tongue at frequent intervals, for the local hemostatic and healing effect on the erosion of the venous wall. The hemorrhages ceased in a few weeks. The patient regained his normal weight, lost his cachectic look, and recovered good health. Esophagoscopy later showed the large folds corresponding to varicosities still present, whether less prominent than formerly it is impossible to say; but the esophagoscope passed into the stomach readily and showed no bleeding point and no blood.

In this case a deductive diagnosis of cancer was supported by the history, the age of the patient, obstruction to the stomach tube, which came back bloody, the analysis of the vomitus, and the beginning cachexia. Only the roentgen-ray examination of Dr. Manges and the exploratory operation done before admission had been negative for cancer. The vomited blood came from the stomach, but it had leaked into the stomach from an eroded varicosity in the esophagus. We think it none too strong a statement to say that absolutely the only means today known to medicine and surgery for making a positive and absolutely certain diagnosis in such a case is by direct inspection of the bleeding point with the esophagoscope. This was done by one of us, without anesthesia, general or local, without hospitalization, and with no more discomfort than having a carious tooth filled, in three minutes and forty-one seconds.

CASE 2.—*Hematemesis in a man, aged 42.* We were asked to examine this patient esophagoscopically by Dr. S. Solis-Cohen, who had made an inferential diagnosis of esophageal varix secondary to a beginning cirrhosis of the liver, though the hepatic symptoms were exceedingly slight; so slight, in fact, that they had been overlooked by several clinicians who had studied the case prior to Dr. Solis-Cohen. Esophagoscopy without anesthesia, general or local, showed the varicosities. The bleedings ceased temporarily, at least, after the use of bismuth subnitrate in small doses dry on the tongue at frequent intervals, and of appropriate treatment for the hepatic trouble. The patient disappeared from observation, but doubtless the hemorrhages recurred; doubtless also the cirrhosis progressed, and ere this has proved fatal.

CASE 3.—*Hematemesis in a woman, aged 46.* This patient was sent to the Bronchoscopic Clinic for diagnostic esophagoscopy by Dr. John B. Deaver, who doubted the diagnosis of cancer made by his predecessors in the case, one of whom had done an exploratory operation. A practitioner three years previously had made a diagnosis of ulcer of the stomach, notwithstanding a negative roentgen-ray examination. The exploratory operation having resulted negatively, the practitioner had made a diagnosis of cancer of the esophagus, based on hematemesis and the fact that a bougie was arrested at 16 cm. from the upper teeth and came back blood stained. The patient was certain that the blood spontaneously produced from time to time was vomited, not coughed up. It was sometimes dark. A rather scanty specimen of vomitus brought in was partly dark, partly bright red, and slightly acid in reaction. The weight loss had been only a few pounds. The stools showed no gross evidences of blood loss. The only symptom other than the spitting up of blood was an intermittent feeling of "burning, rawness and pain," back of the sternum and extending through to the back. This was usually excited by taking food, and it subsided more or less between meals. Roentgen-ray study by Henry K. Pancoast had showed no evidence of gastric or duodenal abnormality and no stenosis or evidence of cancer of the esophagus. From this negative finding and the location of the pain and the symptoms, Dr. Pancoast suggested the tentative diagnosis of esophagitis. He also advised esophagoscopy. On passing the esophagoscope without anesthesia, general or local, we found intense, chronic esophagitis, with superficial, bleeding erosions of the esophageal mucosa above the diaphragm. The abdominal esophagus and the gastric mucosa were seen endoscopically to be normal. Nowhere between the mouth and the pyloric antrum was there any cancerous lesion of the mucosa. The diagnosis, therefore, was "chronic esophagitis with bleeding erosions." The treatment consisted of physical rest, bland liquid diet, and dry bismuth subnitrate by mouth, under the supervision of the family physician, who reported complete recovery in about two months.

Comment on this case is unnecessary, further than to say that this patient and her relatives were needlessly tortured for two years by the mistaken diagnosis of cancer of the esophagus. At any time during those two years the absence of cancer could have been demonstrated, mental anguish terminated, and the hematemesis cured, if the diagnostic esophagoscopy, requiring less than four minutes and no anesthesia or hospitalization for its performance, had been done as a part of the preliminary examination.

CASE 4.—*Hematemesis in a child, aged 2 years.* According to the mother, a very intelligent woman, this baby had been "vomiting blood and food" for six months. The stools had been tarry in character at times. There had been occasionally slight temperature elevation. There was a loose, croupy cough, occasional during the day, but in severe paroxysms at night. The family physician had sent the child to a large clinic, where a diagnosis of splenic anemia was made. Under treatment improvement was noted, and the child returned home. All the symptoms recurred after a bronchopneumonia, and the child was sent to another medical center, where a diagnosis of postnasal hemorrhage was made because of blood found in the fauces in the morning, and adenoids and diseased tonsils were removed. Again temporary improvement followed; but pulmonary symptoms increased, and the blood, though very small in quantity, was red, frothy and not acid in reaction. A diagnosis of tuberculosis was then made, notwithstanding the age of the patient. It was thought that the child was developing a tuberculous joint also. Then the child was sent to Dr. Edward E. Graham, who thought that foreign body should be excluded. He had a roentgen-ray examination made by Dr. Willis F. Manges, who found a safety-pin in the esophagus. Both Dr. Graham and Dr. Manges found conclusive evidences of chronic infective, nontuberculous pulmonary disease. The removal of the pin through the mouth with the esophagoscope and the Tucker forceps, without anesthesia, general or local, was not a difficult matter, notwithstanding the long sojourn and the corroded condition of the pin, and the pathologic changes in the esophagus. The esophagus at the site of lodgment was found obstructed by bleeding granulations and swollen folds. Six months after removal of the pin, the child was reported to be in perfect health.

The interesting points are these: 1. Hematemesis and tarry stools occurred from a foreign body in the esophagus. These symptoms call for exclusion not only of foreign body, but also of disease of the esophagus. Absence of these symptoms does not negative foreign body. 2. There was secondary anemia from esophageal hemorrhage due to foreign body. Puncture by the point of the pin may have been the mechanism of hemorrhage early; later the blood doubtless came from the ulcerative, exuberantly granulating area. 3. There were pulmonary symptoms amounting at times to a bronchopneumonia from a foreign body located not in the lungs, but in the esophagus. This very common and constantly overlooked cause of pulmonary symptoms and of pulmonary disease arises from overflow of food and secretions into the larynx and lower air-passages, because the free and normal flow through the esophagus is interfered with by partial obstruction. 4. Much of the so-called vomiting in this and many similar cases we have seen was not vomiting, but regurgitation. In this case, however, there were a few times when dark flocculi in the vomitus indicated that some of the blood had been in the stomach. 5. The red, frothy, alkaline blood and the strong objective evidence of undoubtedly present pulmonary trouble pointed erroneously to the lungs as the source of blood. 6. Overlooked foreign body cases, of which we have had hundreds come to the Bronchoscopic Clinic, occur not so often from inability to exclude the foreign body, as from the fact that such a possibility is never even thought of.

Case 5.—*Hematemesis from ulcerative syphilitic lesion of the esophagus.* A man, aged 52, was profoundly depressed because of the diagnosis of cancer of the stomach made in three large clinics in as many cities. At the last clinic an exploratory abdominal operation had been negative, and the patient had been told that the cancer was too high in the esophagus to be reached from below. He looked cachectic. For six months he had had progressive weight loss, dysphagia for solid foods, vomiting of blood, and tarry stools. Blind bouginage by one of his previous physicians had improved the swallowing for a time but had not lessened the blood loss. A roentgen-ray examination by Dr. George C. Johnston showed an organic esophageal stenosis of the lower part of the thoracic esophagus. At esophagoscopy, we found in the lower third of the thoracic esophagus a firm, rounded swelling bulging in from the right wall and obliterating the esophageal lumen except for a slitlike depression filled with bright red blood, which reappeared as fast as the aspirator of the esophagoscope took it away. Suddenly, with a retching, there emerged from the slit a large quantity of brownish fluid, containing blackish flocculi and having an odor of stomach contents. After this was taken away by the aspirator and the field cleared, an ulcerated surface was seen on edge occupying the lower part of the nodular mass, down in the slit. The surface of the ulcer was covered with a yellowish exudate and was surrounded, so far as exposed, by a zone of intense redness. An esophagoscopic diagnosis of hemorrhagic ulcerative esophagitis was made. It was deemed best to await the report on the Wassermann test before taking a specimen for biopsy. Dr. Ernest W. Willetts reported this test as positive plus four. Antisyphilitic treatment by Dr. L. W. Swope stopped the hemorrhages. Subsequent esophagoscopy showed the nodular mass to have disappeared. A cicatricial stenosis occupied the place of the ulcer, and included about three fourths of the lumen. Normal swallowing was restored by esophagoscopic dilation.

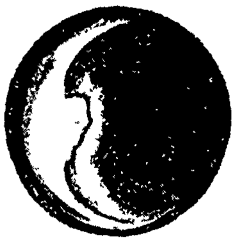


Fig. 2 (Case 5).—Esophagoscopic appearances of an ulcerating gumma of the esophagus that was the source of the blood in a case of hematemesis in a man, aged 52.

While gumma of the esophagus is a relatively rare condition, the close simulation of cancer of the stomach with esophageal extension, in this case, would render it advisable to exclude esophageal syphilis in all cases of vomiting of "coffee ground" character. The accuracy with which the source of blood was located esophagoscopically conveys an obvious lesson.

Case 6.—*Hematemesis in a woman, aged 38.* This patient was referred for esophagoscopy to the Bronchoscopic Clinic by Dr. Henry K. Mohler of Dr. Thomas McCrae's service, with a tentative diagnosis of cancer of the stomach. The patient had great difficulty in swallowing. The food came back frequently, and sometimes it was mixed with bright red blood. Only once had dark particles been noticed, and the patient thought that they were particles of food. Gastroscopy showed no stenosis of the esophagus. Passing on into the stomach, a bleeding, ulcerated lesion was found on the lesser curvature, and a gastroscopic diagnosis of cancer of the stomach was made. A specimen of tissue removed through the gastroscope was reported by Dr. W. M. L. Coplin to be adenocarcinoma. The treatment of cancer of the stomach is, of course, surgical. The patient was referred to the surgical department, where the lesion was found at operation by Dr. Duncan L. Despard, to be small, and the prognosis was deemed the most favorable possible in a malignant lesion in this location.

The interesting points in this case are: 1. While the gastroscope was useful in confirming the diagnosis of gastric malignancy, the important point germane to this paper is the usefulness of the esophagogastroscope in locating the exact source of blood in hematemesis. 2. The occurrence of dysphagia with a patulous esophagus is not infrequent in cancer in the neighborhood of the cardia. The diaphragmatic pinchcock is concerned in this. 3. The occurrence of bright red blood in regurgitated foods does not necessarily mean esophageal disease. This esophagus was normal. 4. Only by the esophagoscope is it possible to exclude a lesion of the esophagus.

Case 7.—*Hematemesis from peptic ulcer of the esophagus.* A woman, aged 48, compained of "water brash" and pain high in the epigastrium extending through to the back. The pain usually appeared an hour or two after eating. The most severe attacks occurred in the evening within three hours after eating. The pain was always relieved by taking sodium bicarbonate. Nausea before breakfast, and occasionally at other times, was followed by vomiting dark fluid containing particles of dark material. A diagnosis of vicarious menstrual hemorrhage from the gastric mucosa had been made early in the case. Bleeding gums had been treated locally. Nocturnal epistaxis was one diagnosis, unsupported by clinical evidence. Later the diagnosis of cancer of the esophagus was made, with a deplorable effect on the morale of the patient. A roentgen-ray examination showed no esophageal obstruction. Esophagoscopy located the bleeding point in a flat ulcer about 1 by 2 cm. in area, in the lower third of the esophagus. There was a zone of hyperemia around the ulcer, the edges of which were not raised or undercut. Silver nitrate was applied locally with the esophagoscope every alternate day. The diet was adjusted to the personal equation of the patient by Dr. K. I. Sanes. Only liquids and smooth semisolids were allowed. The ulcer soon ceased to bleed, and under the silver nitrate local applications was noted esophagoscopically to heal in from the edges. Cicatrization was complete in three months, and the patient was still well at the end of three years.

Water brash is a not infrequent symptom in peptic ulcer of the esophagus. The epigastric pain extending through to the back is characteristic and is usually much more complained of than in cases of cancer. The esophagoscope, however, is the only means by which the differential diagnosis can be made; and is the only means by which the source of the vomited blood can be determined. Even the roentgen ray, which is a diagnostic method of the first importance in all other diseases of the esophagus, is usually negative in cases of peptic ulcer, because these lesions, unlike gastric ulcer, are not usually excavated in form.

Case 8.—*Hematemesis in a man, aged 38.* A stoker, on his voyage home, was relieved from duty and put in the sick bay because of increasing dyspnea and feebleness, accompanied by cough, expectoration of blood, wheezing and hoarseness, which had led to a diagnosis of pulmonary tuberculosis. At times prolonged paroxysms of cough resulted in vomiting, the vomitus containing brownish clear liquid and brownish clots of blood. This had led to a diagnosis of cancer of the stomach at one hospital and to the diagnosis of cancer of the esophagus at another. Our colleagues in the medical department had questioned all these diagnoses. Dr. E. J. G. Beardsley had excluded active tuberculosis, and had found nothing to support a diagnosis of cancer or ulcer of the stomach. The patient was then referred to the Bronchoscopic Clinic for search for a bleeding point in the air or food passages. Esophagoscopy showed no lesion and no blood in the esophagus. Gastroscopy showed the gastric mucosa to be normal and the secretions to be clear and watery, as is usual in the normal empty stomach at gastroscopy. No blood or lesion was visible through the gastroscope, and the secretions automatically aspirated through the auxiliary canal of the gastroscope showed no admixture of blood, old or fresh. Bronchoscopy corroborated a previously made mirror diagnosis of a right recurrent laryngeal paralysis in the cadaveric stage. The trachea about 4 cm. below the glottis was found to be reduced to a narrow crescentic lumen by a pulsating mass which projected in from the right side.

The pulsations were expansile in character. The surface of the mass was granular, red, superficially eroded, and oozing bright red blood in very small quantity. The tracheal rings were visible on the left wall of the trachea, but the ringed appearance vanished as the rings merged into the edges of the mass. The bronchoscopic diagnosis was aneurysm encroaching on the right tracheal wall. A roentgen-ray examination showed the aorta slightly dilated, but not aneurysmal. Careful search with the fluoroscope revealed a small aneurysm of either the innominate or subclavian artery. Because of the shadows of the bony structures it was impossible to be certain as to which vessel was involved, and it was possible that both might contribute to the shadow.

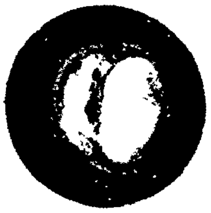


Fig. 3 (Case 7).—Peptic ulcer in the esophagus of a woman, aged 38. Following the blood stream to its source with the esophagoscope revealed this lesion as the source of the hematemesis and ended a year of needless mental anguish caused by an erroneous inferential diagnosis of cancer. Other erroneous diagnoses in this case were "bleeding gums," "vicarious menstruation" and "epistaxis."

Obviously, the vomited brownish blood, of which there was a history, had been coughed up and swallowed probably during sleep. The wheezing was due to partial occlusion of the trachea; the dyspnea partly to this and partly to the diminished glottic area from the recurrent paralysis. The cough was due to the aneurysmal irritation of the nerve trunks, the hematemesis and the hemoptysis to the oozing from the eroding aneurysm. But the most important point of all is this: While it cannot be claimed that a negative endoscopy in a search for a source of hematemesis or hemoptysis is always of more value than any other negative finding, yet when it is positive, as it often is, we have an absolutely conclusive objective finding that is as near final as anything human can be.

Case 9.—*Hematemesis in a man, aged 28.* This patient was referred for diagnostic esophagoscopy as to the cause of difficulty in swallowing, and as to the source of the blood that was spit up or regurgitated with food at rare intervals. While blood rarely came from the mouth, the stools showed evidences of almost constant admixture of blood, and the extreme emaciation and anemia pointed strongly to a hemorrhagic lesion in some portion of the alimentary canal. From the chief of a clinic in another hospital, with his hearty sanction for their publication, we obtained the following data as to the diagnostic steps taken: 1. A bougie had been passed into the stomach and had not shown blood on withdrawal. 2. A stomach tube had been passed every alternate day "to keep the passage open." 3. An exploratory abdominal operation had been done on a tentative diagnosis of ulceration of the stomach or duodenum. The results were negative. 4. A roentgen-ray examination had been negative as to both stomach and bowel, but had shown "a narrowing of the lower third of the thoracic esophagus suggestive of neoplasm." This had been clinically rejected because of the evidence of the bougie and stomach tube. 5. The history of the case, the duration of at least two years, the evidence of the stomach tube and bougie, and especially the age of the patient (28 years)—all these were taken together as conclusive evidence of the absence of cancer. 6. By exclusion, a tentative diagnosis of ulcer of the stomach or duodenum was reached, and an exploratory operation was done. 7. The points just mentioned, together with the negative evidence of the exploratory operation and the continued evidence of bleeding, had led to an inferential diagnosis of varicosities in the lower end of the esophagus. Then the patient had ceased attendance at the medical clinic in the hospital where these observations had been made, and appeared in Dr. DaCosta's service at Jefferson Hospital, whence he was referred to the Bronchoscopic Clinic. Dr. Gabriel Tucker passed an esophagoscope and found bleeding fungations and infiltration obstructing the esophagus at the level of the heart. His esophagoscopic diagnosis was "a bleeding fungating lesion in the lower third of the esophagus, probably cancerous." In view of previous blind instrumentation, he felt that it was impossible to exclude benign exuberant granulations from previous trauma. He took a specimen for histologic examination. Dr. Baxter L. Crawford reported the tissue as squamous-cell epithelioma.

SUMMARY

The foregoing cases are typical of many that seem to us to warrant conclusions that may be summarized as follows:

1. Vomited blood may come from any part of the air passages, upper or lower, as well as from the food passages.
2. Inferential methods of determining the source of blood in hematemesis are subject to a large percentage of error. Objective examination of all accessible portions of the air and food passages should never be neglected.
3. If examinations of the gums, mouth, nasal chambers, pharynx and larynx are negative and the roentgen ray does not definitely locate a lesion in the stomach, bronchoscopy or esophagoscopy, either or both as may be indicated, should be done to locate the source of the bleeding.
4. Blood on a bougie does not indicate a lesion in the esophagus. It is an inferential, not an objective means, and is useless for the diagnosis as to the source of blood in hematemesis. The bougie can bring blood from normal mucosa. There is much truth in the saying of Trousseau that sooner or later all patients with esophageal stenosis die of the bougie. Blind bouginage for diagnosis is no safer today than in Trousseau's day; nobody can tell where the end of the bougie is going.
5. Esophagoscopy is safe, because the esophagoscopist can see what is ahead of the tube mouth. He advances the tube when he sees a lumen; he does not

push it through tissue, normal or abnormal. It is not claimed, however, that a man who has never looked through an esophagoscope before can telegraph for an instrument, do a safe esophagoscopy, and make a certain diagnosis, any more than he could look through a microscope for the first time in his life and make a definite histologic diagnosis. Untrained hands may make a false passage with the esophagoscope as well as with the urethroscope; but the mortality from esophageal trauma is very high as compared to urethral injury.

6. Peptic ulcer of the esophagus is an overlooked cause of hematemesis. It can be diagnosticated in no way other than by esophagoscopy.

7. The cardinal rule in hematemesis with negative roentgen-ray findings should be: Follow the blood to its source by objective methods.

ABSTRACT OF DISCUSSION

Dr. E. J. G. Beardsley, Philadelphia: Dr. Jackson's group of workers have fully convinced me that deductive diagnosis is subject to a large percentage of errors. These patients had been under the observation and care of excellent physicians. Several of them had been seen by clinicians whose opinions are highly regarded in every medical circle. These physicians had used the deductive method of diagnosis and had been mistaken both in diagnosis and prognosis. Several of the patients reported on had been pronounced by competent medical opinion as hopelessly ill. Are we not too quick to decide that nothing can be done to save a patient because the newer methods of investigation and treatment are new and strange to us? We that work in the medical dispensaries and wards have learned the advantage of consultation with Dr. Jackson and his staff in cases of both obvious and obscure pathology of the air passages and of the upper gastro-intestinal tract. We have observed that no matter how poverty stricken he may be, the investigation and treatment is just as complete and thorough as though the patient enjoyed all the surroundings of wealth. Dr. Jackson has presented a summary of the investigation of a small number of patients. We have had the advantage of observing his study of a large number. We have been impressed by his careful system, by the thoroughness with which each patient is investigated, whether the symptoms presented seem slight or severe.

Dr. H. B. Orton, Newark, N. J.: My experience in this line has been very limited. I know of one case in which a foreign body had lodged in the esophagus and ulcerated through to the bronchi and trachea, and it was not until both hemoptysis and hematemesis were found that the roentgenogram was made. Also in two other cases in which there had been hemoptysis, with unproductive cough, on passing the bronchoscope in both cases we removed a primary carcinoma of the bronchus. Varicose veins in the esophagus have been encountered, and I happened to see one case of a physician who had swallowed a piece of glass; and while there was no foreign body found, just within the esophagus there was a large bunch of varicose veins which were bleeding freely. Another case had gone on for years, with hemoptysis. This man had been working in acid fumes. A small bone was removed from the right bronchus, with no history of foreign body.

Dr. Ellen J. Patterson, Pittsburgh: In the case of a girl, about 14 years of age, who came into the hospital vomiting blood, the roentgen-ray findings were negative. We decided to pass a bronchoscope and find out where the blood came from. The physical findings were negative, but she was having spontaneous hemorrhage from the right bronchus. One very erroneous idea held by many members of the profession and by the laity is that a sharp foreign body will cause hemorrhage. As a matter of fact, very few of them do. Every patient coming into the hospital vomiting blood should be examined by the direct method, as inferential diagnosis is often erroneous. It is not safe to make a diagnosis without looking to see whether the blood comes from the stomach, the esophagus or the bronchi.

Dr. William B. Chamberlin, Cleveland: I want to emphasize the value of direct inspection in these cases. I do not know of anything more difficult to solve than the problem of the underlying condition when a patient comes in complaining of spitting blood. We do not know until after a careful examination what the origin of this blood may be, whether from the lung, from the esophagus, from the stomach, from the upper air passages, from the posterior part of the nares and nasopharynx, from the teeth, and so forth. Naturally, the diagnosis is extremely important. In a case with some slight spitting of blood, the characteristic thing was that immediately after the ingestion of food or drinking of water there was a violent paroxysm of coughing. Examination disclosed a fistula between the left main stem bronchus and the esophagus. That is one illustration of the value of the direct method of examination. In another case, carcinoma had been diagnosed definitely by one of the best internists, as well as by one of the best roentgenologists in Cleveland. Passage of the esophagoscope showed a perfectly normal esophagus, and the diagnosis of carcinoma was refuted by the direct inspection. The obstruction was shown definitely to be due to cardiospasm. Vision will always be superior to palpation and to shadow pictures.

Dr. Leon T. LeWald, New York: Roentgen-ray diagnosis of these esophageal lesions is not at all easy, as Dr. Jackson knows, and it is only by a careful and persistent follow-up of the roentgen-ray examination on successive days and under different conditions and positions of the body, and different tests, such as the opaque capsule, that we are able to make an early diagnosis and to differentiate between benign and malignant conditions of the esophagus. I should like to ask Dr. Jackson whether he has been able to diagnose syphilitic lesions of the esophagus, or, what is perhaps still more important, syphilitic lesions of the stomach in cases in which a presumptive diagnosis of carcinoma of the stomach has been made. I know of two cases. One patient was told that he had an inoperable cancer of the stomach. He took some "patent medicine," containing probably potassium iodid, and was alive several years later. The other case is that of a man who gives a history of chancre about forty-two years ago. He now has a very definite mass in the stomach which has been regarded as inoperable carcinoma, but his appearance is more like that of a man who has syphilis of the stomach. I think it would be best, from what Dr. Jackson has told us, to get a section of the stomach through the gastroscope and make a differential diagnosis.

Dr. Chevalier Jackson, Philadelphia: The point brought out by Dr. LeWald is really very important, and I agree with him. It has been erroneously stated that the esophagoscope cannot make a diagnosis of syphilis of the esophagus. In the first place, the esophagoscope with us is never passed for diagnosis until we have obtained a report on the Wassermann test. Syphilis must be excluded as far as possible beforehand. In the two cases reported, biopsy was relied on for differential diagnosis. When we get a positive report as to, say, adenocarcinoma of the stomach, we would know that it is not a syphilitic lesion. With a negative Wassermann reaction in a case of blood coming from varicosities in the esophagus and no ulceration present, we conclude that this is not syphilis but a varicose condition of the blood vessels. If we have a specimen from what looks like a peptic ulcer, and the histologist finds no malignancy, and the Wassermann reaction is negative, our diagnosis by exclusion is peptic ulcer. It is a disease commoner than supposed before the days of esophagoscopy. I should like to emphasize the point I made in the paper and which I mentioned casually, namely, that we never pass an esophagoscope until we have had a roentgen-ray examination. In about 95 per cent. of the cases all we do, as in the case of Dr. LeWald's patient, is to confirm the roentgen-ray examination; but in the remaining 5 per cent. we add data of vital importance. The roentgen-ray examination is an objective method, and by it the outer borders of the lesions are mapped out in an important way. There is only one lesion which the roentgen ray fails to show, and that is peptic ulcer. We have studied with Dr. Manges and Dr. Pancoast a number of cases of peptic ulcer, and this is our conclusion. The point brought out by Dr. Patterson is very important—one I did not mention in the paper—namely, that all patients giving a history of spitting blood, supposed to be due to foreign body, the air and food passages should be searched for organic lesions by the laryngoscope, bronchoscope and esophagoscope.

SYPHILITIC ELEPHANTIASIS OF THE SCROTUM *

CLEMENT H. MARSHALL, M.D.
MEMPHIS

Syphilis as a possible cause of elephantiasis has long been recognized. Allan Webb,[1] in 1855, considered syphilis the cause of elephantiasis of the penis and scrotum in some cases long before the filarial organism was discovered. Mracek and Lang,[2] in 1889, described a case of elephantiasis produced by a diffuse hypertrophic syphiloma. Fourner described the condition in his textbook as a well recognized manifestation of syphilis. Francis,[3] in 1894, reported cases associated with tertiary syphilis. More recently, Adamson,[4] Ravogli,[5] McDonagh,[6] Petrov,[7] Levy-Bing and Gerbay,[8] Lintz,[9] and Taussig [10] have reported cases of syphilitic elephantiasis of the male and female genitalia and lower extremities.

According to the literature and to my own observations, elephantiasis of the scrotum is a rare condition in America. Elephantiasis of the lower extremities and of the external genitalia of the female are much more common findings. Only one case involving the scrotum has been observed in the Memphis General Hospital and its outpatient department during the last six years. Since a vast majority of these patients have been negroes, in whom the condition is most often found, I feel that elephantiasis of the scrotum from any cause must be a rare condition in this country.

REPORT OF CASE

The following case was recently studied in the Memphis General Hospital and outpatient department:

E. G., a colored man, aged 30, entered the hospital in May, 1924, because of marked enlargement of the scrotum. This enlargement had been coming on gradually for five or six months without pain or any local or general symptoms.

In 1920, the patient came to the outpatient department because of a foreign body in the eye. A Wassermann test was taken at that time and found to be four-plus positive. He stated at that time that he had a penile lesion and generalized rash about nine years before. He did not return for antisyphilitic treatment, nor did he receive any treatment up to the time he came to the hospital four years later.

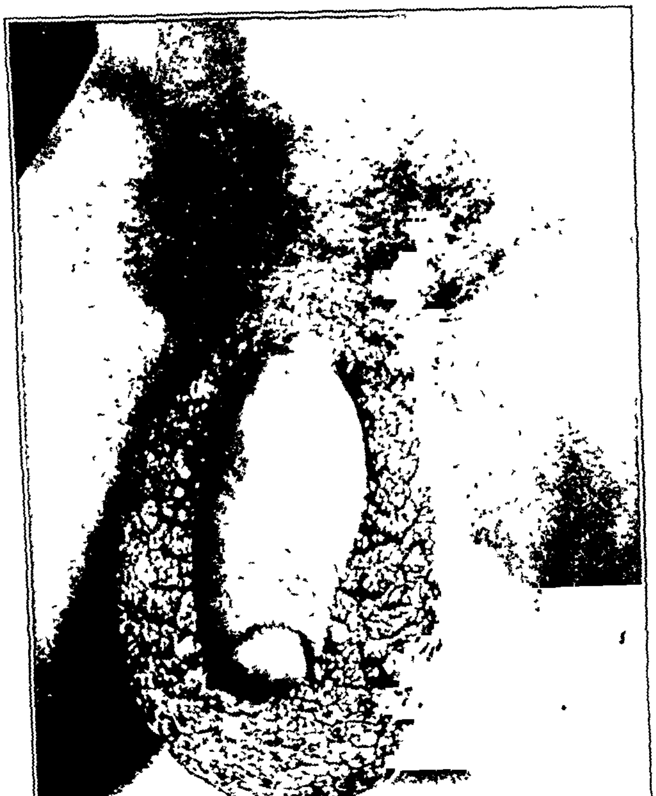


Fig. 1.—Elephantiasis of scrotum.

Examination in the hospital showed the patient to be well nourished and to have no acute illness. He had a generalized adenitis, the nodes being small and hard. The remainder of the examination was negative except for the genitalia.

The penis was markedly enlarged, the prepuce greatly thickened so that retraction was impossible. The scrotum was many times the normal size and very firm on palpation. The skin could not be picked up between the fingers because of the extreme thickness and leathery consistency. There was no pitting on pressure. Over the surface were a few smooth, round tumors, about the size of a pea, and numerous flat-topped warty papules, which were both discrete and confluent. The normal lines of the skin were greatly exaggerated. There were no ulcers, excoriations, fissures or sinuses, nor was there any inflammation of the skin or tenderness on palpation. The testes could not be felt because of the great thickness of the overlying skin. The Wassermann reaction was four-plus on two examinations. The circumference of the penis was 6½ inches at the widest point. The circumference of the scrotum was 18 inches and, from the perineum to the base of the penis, 15½ inches. The skin was scarified and cultures were made, all of which remained sterile.

There were no pathologic changes in the prostate or seminal vesicles. The former was small and firm with both lobes uniform in size, the median raphe obliterated and the notch preserved. The seminal vesicles were not palpable. The inguinal lymph glands were slightly enlarged and shotty, as were the other superficial glands.

Biopsies of three of the warty lesions were made, and one of the smooth tumors was removed for microscopic study. Sections were stained with hematoxylin and eosin, Unna's polychrome methylene blue, Pappenheim's plasma-cell stain and acid orcein.

The smooth round tumor proved to be a sebaceous cyst and was filled with a whitish material of a soft and cheesy consistency. The epidermis in the other sections showed

---

* From the Department of Dermatology, University of Tennessee College of Medicine.

* Read before the Section on Dermatology and Syphilology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Webb, Allan: Indian Ann. M. Sc. **4**: 619, 1855, quoted by Lintz (Footnote 9).

[2] Mracek and Lang, quoted by McDonagh (Footnote 6).

[3] Francis: Brit. J. Dermat., 1894, p. 225, quoted by McDonagh (Footnote 6).

[4] Adamson: Elephantiasis Associated with Tertiary Syphilis, Brit. J. Dermat., 1910, p. 161.

[5] Ravogli, A.: Syphilitic Elephantiasis of the Genitals, Lancet Clinic **115**: 573 (June 17) 1916.

[6] McDonagh: Case of Syphilitic Elephantiasis of the Scrotum, Brit. J. Dermat., 1912, p. 24.

[7] Petrov: Sur l'elephantiasis syphilitique, Ann. d. mal. vén. **10**: 337, 1915.

[8] Levy-Bing and Gerbay: Deux cas d'élephantiasis syphilitique des organes génitaux, Ann. d. mal. vén. **13**: 600, 1918.

[9] Lintz, J.: Elephantiasis with Reference to Syphilis, New York M. J. **113**: 535 (April 6) 1921.

[10] Taussig, F. J.: Am. J. Obst. & Gynec. **3**: 281 (March) 1922.

practically no change, there being only a slight hyperkeratosis and a moderate acanthosis in some fields. The striking pathologic changes were in the dermis. There was a marked increase in collagen and a decrease in elastin. The collagen bundles were greatly enlarged and were apparently responsible for the extreme thickness and firm consistency of the skin. Numerous dilated lymph spaces of various sizes were scattered throughout. A few hair follicles were found, but no sebaceous nor sweat glands. There was considerable perivascular infiltration, made up for the most part of small lymphocytes and plasma cells with a few mast cells. The plasma cells appeared in large numbers in most fields. The vessel walls were thickened, especially those of the arteries. The media was thickened and the endothelium showed proliferation, the nuclei extending well out into the lumen. Many of the smaller arterioles were completely obliterated. No bacteria could be found in the sections.

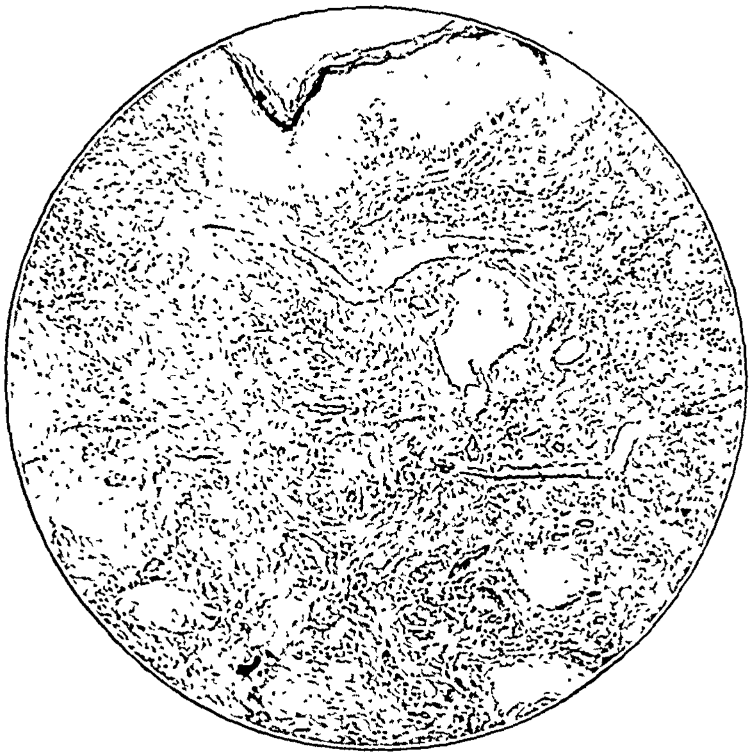


Fig. 2.—Appearance of section, slightly reduced from a photomicrograph with a magnification of 60 diameters.

The microscopic picture was typical for that of elephantiasis and confirmed the clinical diagnosis. The microscopic findings were those for the most part accepted by all observers. Unna found large numbers of plasma cells as were present in our sections, while others have found none or only a very few plasma cells. Only a few observers have mentioned the blood vessel involvement so apparent in our sections.

COMMENT

There has been a great deal of controversy over the etiology of elephantiasis both of the sporadic and of the tropical form, especially of the latter, particularly as to what part the filaria organism plays in these cases. Sabouraud,[11] in 1892, first found the streptococcus to be responsible for the condition in five sporadic cases studied by him. By making cultures from the scarified skin during the inflammatory stage, he obtained pure cultures of Fehleisen's streptococcus. His work has since been verified, and it is now generally accepted that the streptococcus is responsible for the majority of such cases. His work likewise stimulated investigation of tropical cases along similar lines, and Powell,[12] Dubruel,[13] Prout [14] and others now believe that the endemic form is bacterial in origin. Manson [15] believes that the filaria predisposes to bacterial invasion through injury to the lymphatics.

That merely the blocking of the return lymph flow will not always produce elephantiasis is frequently demonstrated. Surgical removal of lymph glands is often followed by edema, but not often by elephantiasis. Unna [16] believed the essential factor to be a venous thrombosis and that lymphatic obstruction need not be present. LeDantec [17] and Sabouraud likewise believe that elephantiasis can occur independently of lymphatic obstruction. In Elliott's [18] case, as in ours, there was marked involvement of the arteries, with thickening of the media and proliferation of the endothelium. Mahon [19] attempted to produce elephantiasis in laboratory animals by ligating the femoral vein and by dissecting out the lymphatics and at the same time injecting streptococci from cultures taken of a patient with elephantiasis. Edema occurred, but elephantiasis did not develop. He concluded that the filaria organism probably excites an inflammatory change predisposing the tissues to bacterial growth, which in turn produces the hypertrophy.

Although the sporadic type is generally accepted as streptococcic in origin in most instances, there are a few cases in the literature which were undoubtedly syphilitic or in which syphilis played an important part in the etiology. McDonagh's patient, with definite evidence of tertiary syphilis, in whom a careful search for streptococci was made with negative results, responded readily to mercury, the elephantiasis involuting soon after the mercury was started. Petrov treated one case with improvement in six days and complete disappearance of the scrotal hypertrophy after two months. Levy-Bing and Gerbay obtained similar results in two cases. Lintz reported excellent results with antisyphilitic treatment in two cases of syphilitic elephantiasis of the leg.

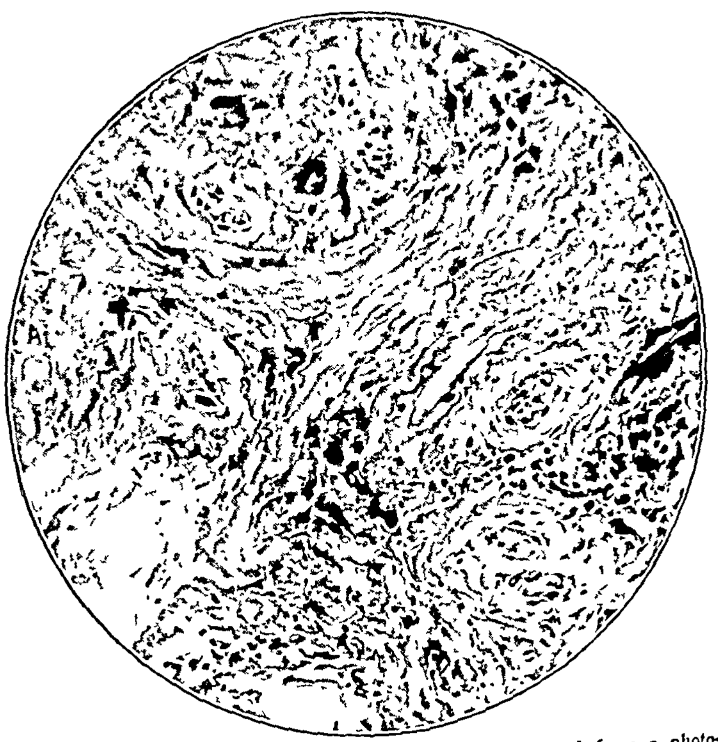


Fig. 3.—Involvement of blood vessels; slightly reduced from a photomicrograph with a magnification of 185 diameters.

---

[11] Sabouraud: Sur la parasitologie de l'éléphantiasis nostras, Ann. de dermat. et de syph., 1892, p. 592.

[12] Powell: Brit. M. J., 1908, p. 1364.

[13] Dubruel, quoted by Shattuck: Boston M. & S. J., 1910, p. 107.

[14] Prout: Brit. M. J., 1908, p. 1364.

[15] Manson: Tropical Diesases, Ed. 4, 1908.

[16] Unna: The Histopathology of Diseases of the Skin, Translated by Walker.

[17] LeDantec, quoted by Sistrunk, W. E.: The Kondoléon Operation for Elephantiasis, J. A. M. A. **71**: 800 (Sept. 7) 1918.

[18] Elliott, J. A.: Elephantiasis Nostras, J. Cutan. Dis. **35**: 17 (Jan.) 1917.

[19] Mahon, G. D.: Am. J. M. Sc. **165**: 875 (June) 1923.

Our patient showed improvement soon after antisyphilitic treatment was instituted, and three months later the thickness of the skin was greatly reduced and soft, so that the testes were now easily palpated. Six months after treatment was started, the circumference of the scrotum was reduced from 18 inches to 11 inches.

The hypertrophy, coming on gradually without chills and fever or without any attacks of pain, erythema or erysipelas, which are almost constant findings in the streptococcic type, are the chief points against this case being of that etiology. Likewise the negative cultures and absence of bacteria in the sections do not favor streptococcus as the etiologic agent. The history of syphilis, the positive Wassermann reaction on several occasions and the rapid involution under antisyphilitic treatment point to syphilis as the chief if not the only etiologic agent in this case.

CONCLUSIONS

1. Although most cases of sporadic elephantiasis are streptococcic in origin, undoubtedly a few cases are syphilitic.
2. Arteritis and phlebitis probably play an important part in the stasis and subsequent hypertrophy.
3. Improvement, if not complete involution, can be obtained by antisyphilitic treatment in some cases.

ABSTRACT OF DISCUSSION

Dr. John H. Stokes, Philadelphia: My impression is that the cause of scrotal elephantiasis may lie back of the scrotum and be ascribable, perhaps, to gummatous changes in the lymph nodes in some cases. In tuberculous elephantiasis of the vulva and of the leg, tuberculous obliteration of the lymph nodes may be responsible for much of the picture produced by lymphatic stasis, plus, in some cases, intercurrent streptococcal infection.

CONTRIBUTIONS TO THE PHYSIOLOGY OF THE STOMACH

IX. THE CAUSES OF GASTRIC SECRETION: THEIR PRACTICAL SIGNIFICANCE AND THE MECHANISMS CONCERNED *

A. C. IVY, Ph.D., M.D.
CHICAGO

When my colleagues and I began the study of gastric secretion, it was generally taught that gastric secretion following a meal was caused (*a*) psychically by the sight, smell and taste of food, and (*b*) chemically by the local action in the stomach of specific substances in or derived from food and by a hormone, gastrin, which was elaborated by the contact of food substances with the gastric mucosa.

Evidence that has been accumulating during the last five years has made it necessary for us to change some of our views and to present a new classification of the factors concerned in the genesis of gastric secretion.

THE CEPHALIC PHASE OF GASTRIC SECRETION

The observations and experiments of Bidder and Schmidt,[1] Richet,[2] Pawlow,[3] Carlson[4] and others have demonstrated unequivocally that the sight, smell and taste of food cause the gastric glands to secrete, provided the person has an appetite. Luckhardt and Johnston[5] have found that the suggestion of the eating of a meal to hypnotized subjects provokes a copious secretion of gastric juice. Such stimuli are supposed to act by arousing conditioned reflexes that have been established by the pleasure and feeling of contentment derived from the cessation of hunger and the satisfaction of the appetite that results from the ingestion of a meal. The resulting secretion has been termed the psychic, or appetite, secretion.

Recently, Zeliony[6] has reported that the gastric glands of a decerebrate dog will secrete when the animal tastes food (sham feeding). This observation shows that other than solely cerebral reflexes are concerned in the excitation of the gastric glands from the head region.

This initial phase of gastric secretion we have termed the cephalic phase, denoting that it is due to stimuli acting on sensory end-organs located in the head. It is evident, then, from the foregoing facts that the cephalic phase of gastric secretion is caused by (*a*) reflexes through the cerebral cortex (psychic), and by (*b*) reflexes through the thalamus, midbrain or medulla, the afferent sensations being caused by the sight, smell and taste of food, chewing and swallowing quite probably playing the rôle of decreasing the threshold of the reflex arcs concerned. The vagi are the efferent nerves concerned in conducting the impulses from the gastric secretory center or centers to the gastric glands.[3]

THE GASTRIC PHASE OF GASTRIC SECRETION

Since it is well established that gastric digestion after a short delay will be initiated and carried to completion in the absence of the cephalic phase, obviously stimuli acting in the stomach or in other parts of the gastro-intestinal tract serve as excitants. As a matter of fact, the cephalic phase of gastric secretion usually disappears in from thirty to forty-five minutes, and the remaining period of gastric digestion (from four to five hours) must be accomplished by a secretion resulting from sources other than cephalic stimuli.

Mechanical Stimulation.—Magendie,[7] Tiedmann and Gmelin,[8] Beaumont,[9] Schiff,[10] Grützner[11] and Heidenhain[12] all presented evidence that the gastric glands could be stimulated mechanically by indigestible substances. Only the work of Beaumont and Heidenhain was apparently controlled, however. Blondlot[13] could not confirm Beaumont and other observers. Pawlow[3] has expressed the opinion that the mechanical stimulation of earlier observers was due to psychic reflex activity. He obtained negative results when he stimulated the mucosa of the stomach with sand, a test tube brush, etc., but did observe that the distention of the stomach with a balloon sometimes provoked secretion. He expressed the opinion that this stimulation was psychic, as it occurred only in dogs that were hungry. He did not sever the vagi, however, in order to put to test this opinion.

---

* From the Hull Physiological Laboratory, the University of Chicago.

[1] Bidder and Schmidt: Die Verdauungasäfte, 1852.

[2] Richet: J. Anat. et Physiol., 1878, p. 526.

[3] Pawlow: The Work of the Digestive Glands, London, 1910.

[4] Carlson: The Control of Hunger in Health and Disease, Chicago, 1916.

[5] Luckhardt, A. B., and Johnston, R. L.: Am. J. Physiol. **70**: 174 (Sept.) 1924.

[6] Zeliony: Eleventh International Physiologic Congress, Edinburgh, July, 1923.

[7] Magendie: Précis élémentaire de physiologie, Paris **2**, 1817.

[8] Tiedmann and Gmelin: Die Verdauung nach Versuchen, Leipzig **2**, 1824.

[9] Beaumont: Experiments and Observations on the Gastric Juice, Plattsburg, 1883.

[10] Schiff: Leçons sur la physiologie de la digestion, Paris **2**: 1867.

[11] Grützner: Neue Untersuchungen über Bildung und Ausscheidung des Pepsin, Breslau, 1875 (quoted by H[illegible]

[12] Heidenhain, in Hermann's [illegible]

[13] Blondlot: Traité analytique [illegible] III, 1883.

Recently Lim, Ivy and McCarthy[14] have found, by using dogs prepared with a pouch of the entire stomach (Fig. 1) and an end-to-end duodeno-esophageal anastomosis, that distention of the stomach with a balloon (from 150 to 300 c.c. of air) or with wooden beads stimulates the gastric glands (Table 1). This stimulus applied for half an hour yields from 20 to 50 c.c. of juice of high acidity. The latent period of response varies from five to fifteen minutes. The stomach of man also responds to mechanical distention. Our method of stimulation differed from that of Pawlow in that he distended the balloon more than we did and intermittently collapsed and distended it only for a period of from ten to fifteen minutes, whereas we maintained the distention continuously for half an hour or more. Not all dogs respond. We believe that the failure of response in some animals is due to pain resulting from traction on adhesions. Necropsy has verified the complete section of the vagi with the possible exception of a small branch that passes to the celiac ganglion that sometimes leaves the vagus above the diaphragm. That impulses carried by way of the vagi and splanchnics are not concerned in the stimulation is shown by the response of Bickel denervated pouches and a completely transplanted gastric pouch[15] (into the mammary gland) to mechanical distention.

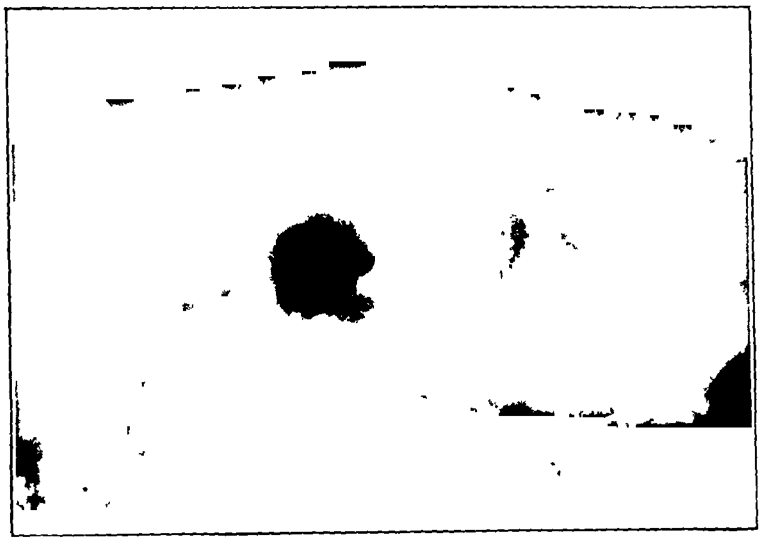


Fig. 1.—Pouch of entire stomach distended with a balloon (250 c.c. of air) and a duodeno-esophageal end-to-end anastomosis; peristalsis in esophagus.

Chemical Stimulation of or by Way of the Gastric Mucosa.—That Beaumont believed in the chemical stimulation of the gastric glands is evident from his writings. Blondlot,[13] however, offered the first definite expression of this concept. The work of Pawlow and his colleagues, including the experiments of Zeliony and Savitsch,[16] has shown that the gastric glands can be stimulated by local contact of substances with the gastric mucosa. In the experiments of some of the earlier workers, however, the possibility of substances stimulating from the intestine or by mechanical distention was not considered.

Edkins[17] has proposed a hormone theory, which maintains that the contact of acid and food substances with the pyloric mucosa causes the elaboration and absorption into the blood of a hormone, gastrin, which is carried to the gastric glands and excites them. As originally stated the theory is inadequate, but as a concept it has neither been proved nor disproved. It has been criticized by several workers within recent years.[18] The chief facts opposing it are: (1) that a gastric secretin can be isolated from many animal as well as plant tissues, meaning that a gastric secretin is not specific as to location, and probably not to action or kind, and (2) that attempts to demonstrate a hormone in the blood has met with failures or unsatisfactory results.[19] These facts should not be dogmatically interpreted, however, to mean that a hormone is not concerned in gastric secretion.

By using a pouch of the entire stomach, we[14] have found (Table 2) that meat or meat juice is the only one of the common food substances as yet used that stimulates gastric secretion by local action on the gastric mucosa when applied in amounts insufficient to involve stimulation by distention. Histamin and β-alanin are pure chemical substances that stimulate on local gastric application.

THE INTESTINAL PHASE OF GASTRIC SECRETION

The first investigator to observe that the gastric glands could be excited from the intestine was Pawlow. This observation has been confirmed by others.[20] Nevertheless, no physiologic significance has been ascribed to such observations.

Ivy and McIlvain[20] and Ivy and Javois[21] have recently found so many physiologically important substances that excite gastric secretion from the intestine that they have been led to consider that intestinal stimulation is an important factor in the genesis of gastric secretion. Garbat[22] has presented confirmatory observations on patients.

That there is an intestinal phase of gastric secretion has been unequivocally demonstrated by Ivy, Lim and McCarthy[23] by observing that a marked secretion of gastric juice (from 200 to 400 c.c. in twenty-four

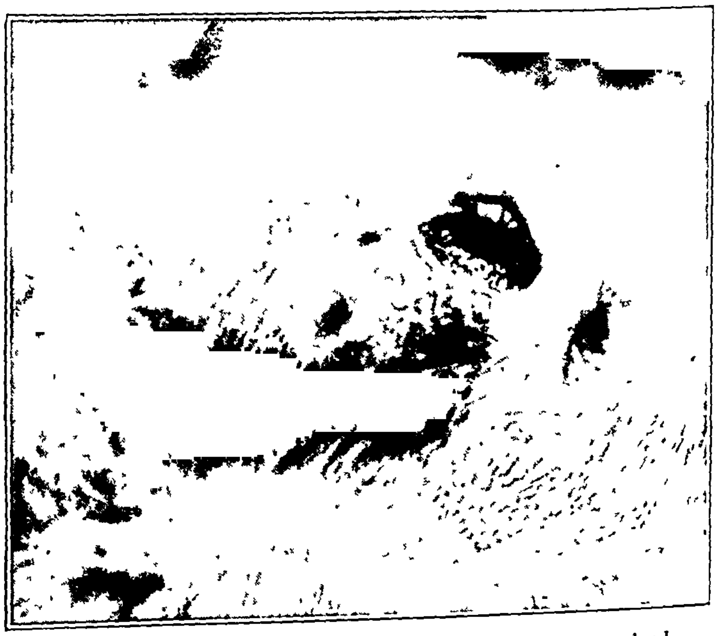


Fig. 2.—Gastric pouch transplanted into the mammary gland.

---

[14] Lim, Ivy and McCarthy: Quart. J. Exper. Physiol. **15:** 13, 1925.

[15] Ivy and Farrell: Am. J. Physiol., to be published.

[16] Zeliony and Savitsch: Arch. f. d ges. Physiol. (Pfluger's) **101:** 136, 1913.

[17] Edkins: Am. J. Physiol. **33:** 133, 1906; **38:** 263, 1909.

[18] Ivy, A. C., and Whitlow, J. E: Am J. Physiol. **55:** 306, 1921; **60:** 578 (May) 1922. Lim: Quart. J. Exper. Physiol. **13:** 71-79, 1922. Keeton, R. W.; Koch, F. C., and Luckhardt, A B: Am. J. Physiol. **51:** 454, 469, 527 (April) 1920; **52:** 508 (July) 1920. Ivy, Lim and McCarthy: Am. J. Physiol., to be published.

[19] Ivy, Lim and McCarthy (Footnote 18).

[20] Ivy, A. C., and McIlvain, G. B: Am. J. Physiol. **63:** 418 (Feb) 1923.

[21] Ivy, A. C., and Javois, A. J.: Am. J. Physiol. **71:** 583, 591, 604 (Feb.) 1925.

[22] Garbat: Tr. Twenty-First Annual Meeting, American Gastro-Enterological Association, 1923, p 45.

[23] Ivy, Lim and McCarthy: Quart. J. Exper. Physiol. **15:** 55, 1925.

hours) occurs in a pouch of the entire stomach when a dog with an end-to-end duodeno-esophageal anastomosis is fed. It is evident that in such an animal the food passes directly from the esophagus into the intestine without coming into contact with the stomach. When cooked ground meat, bread and milk are fed, the pouch of the entire stomach does not begin to secrete for from two to four hours. If the food is predigested with pancreatin or hydrochloric acid-pepsin, the entire stomach pouch secretes within an hour after feeding. Whether or not the drinking of water stimulates gastric secretion in such an animal depends to a large extent on the degree of thirst and the time since the last meal—the shorter the time since the last meal, the greater the stimulation.[23]

Since we have not been able to observe stimulation of gastric secretion on distending the intestine, we believe that intestinal stimulation is due entirely to chemical substances in the food or, preferably, that arise from digestive or bacterial action in the intestine, which act on or by way of the intestinal mucosa.

MECHANISMS CONCERNED IN GASTRIC SECRETION

The theoretically possible mechanisms concerned in the direct excitation of the gastric gland cells can be thus summarized:

1. Specific secretory nerves similar to those innervating the salivary glands, being excited by: (*a*) stimuli acting in the head region (cephalic phase of gastric secretion; (*b*) secretagogues acting on the mucosa of the stomach, giving rise to long reflexes through a secretory center in the medulla and to short local reflexes through enteric plexuses in the gastric mucosa, and (*c*) secretagogues acting on the mucosa of the intestine, giving rise to reflexes through the celiac ganglion or through enteric connections.

TABLE 1.—*Effect of Mechanical Stimulation of Stomach* *

Procedure	Hour	C.c.	Free HCl	Total HCl	Output HCl
Control...............	1:45-2:00	1.0	0	082	0.8
Balloon introduced into stomach and inflated with 200 c.c. of air (2-3 p.m.)	2:00-2:15	4.0	255	300	12 0
	2:15-2:30	6.0	291	328	20.0
	2:30-2:45	6.6	319	364	24.0
	2:45-3:00	6.1	346	391	23.9
	3:00-3:15	1.8	2.8	255	4.1

* Entire stomach pouch (No. 6); duodeno-esophageal anastomosis.

2. An increase in the active blood flow through the gastric glands, caused by: (*a*) the reflex excitation of vasodilator nerves; (*b*) direct action by way of the mucous membrane (mild irritation); (*c*) gastric or intestinal motility, and (*d*) an increase in total blood volume.

3. Direct mechanical or chemical action on the gland cells by the food.

4. A hormone elaborated by the mucosa of the stomach and intestine by the mechanical or chemical contact of food substances or secretagogues, which acts, after being absorbed into the blood or lymph, (*a*) by direct action on the gland cells, or (*b*) as a vasodilatin causing increased vascularity and permeability, or both.

5. Secretagogues present in the raw food or arising from the digestion of food substances, which act as a hormone might act.

6. A "digestive blood state," by which we mean that some change occurs in the blood due to the secretion of the digestive glands and the entrance of food into the gastro-intestinal tract, such as a change in reaction or a mobilization of substances necessary for secretion, which renders the blood favorable for the formation of gastric juice.

Several or all of these possible mechanisms may be concerned. One of them should not be upheld or emphasized to the exclusion of the others until final proof is at hand.

Beaumont[9] thought that both mechanical and food stimuli irritate the blood vessels, causing increased vascularity and, as a consequence, secretion. Blondlot[13] was of the opinion that gastric secretion was caused reflexly when nerve endings in the gastric mucosa were appropriately stimulated by food. Heidenhain[12] believed that a local reflex was concerned, but also thought that mechanical stimuli might have a direct action on the gland cell, as occurs in *Drosera*, a plant that exudes a digestive juice on being mechanically irritated. Pawlow[3] taught that long and local reflexes are concerned, but also upheld the possibility that a hormone or secretagogues, acting by way of the blood, might be involved. Edkins[17] has advanced the hormone theory. Popielski[24] has presented evidence supporting a local reflex mechanism and has enunciated a humoral theory which differs chiefly from Edkins' in that "gastrin" is called a "vasodilatin" and that the latter arises in the process of digestion and, on being absorbed, produces an effect by increasing vascularity and permeabil-

TABLE 2.—*Effect of Raw Meat and Raw Meat Juice on the Stomach* *

Procedure	Hour	C.c.	Free HCl	Total HCl	Output HCl
Control................	1-2	5.0	0	064	3.2
	2-3	4.2	0	027	1.1
100 gm. raw meat (volume 70 c. c.) introduced into the stomach (3-4 p.m.)	3-4	11.5	0	346	39.8
	4-5	8.7	173	346	30.1
	5-6	4.0	182	283	11.3
	6-7	4.7	104	250	12.0
Control................	1-2	1.0	054	346	3.5
Stomach irrigated with 20 c.c. concentrated meat juice (2-3 p.m.)	2-3	45.0	0	547	177.0
	3-4	7.0	136	373	26.0
	4-5	0.5	201	309	1.5

* Entire stomach pouch No. 6; duodeno-esophageal anastomosis.

TABLE 3.—*Gastric Secretory Response to a Meal of a Dog with an Entire Stomach Pouch* *

Procedure	Hour	C.c.	Free HCl	Total HCl	Output HCl	Comment
Control.......	2:30-3	2.2	063	136	3.0	
	3-3:30	2.2	045	118	2.6	
	3:30-4	3.1	082	136	4.2	
Meal at 4 p.m. 150 gm. meat 100 gm. bread 500 c.c. milk	4-5	4.6	069	119	5.4	
	5-6	4.9	054	119	5.8	
	6-7	4.5	045	127	5.7	
	7-8	6.0	054	127	7.6	
	8-9	5.0	136	228	11.4	
	9-10	7.0	182	228	16.0	
Dog finished meal at 11 p.m.	10-11	9.2	228	282	25.9	
	11-12	10.0	218	264	26.4	Stool
	12-1	15.8	291	355	56.1	
	1-2	11.7	218	264	30.9	
	2-3	9.8	191	255	25.0	
	3-4	16.0	273	319	51.0	
	4-5	18.0	182	228	41.0	Stool
	5-6	21.5	237	300	64.5	
	6-7	6.7	191	255	17.1	
	7-8	11.4	309	355	40 4	
	8-9	6.0	237	273	14 4	
	9-10	13.0	319	373	48.5	
	10-11	8.8	291	337	29.6	
	11-12	12.3	255	300	36.9	

* Preparation No. 6; dog's weight, 7.6 kg.; duodeno-esophageal anastomosis; total quantity of juice secreted in twenty hours, 202.2 c.c.

---

[24] Popielski: Zentralbl. f. Physiol. **16:** 121, 1902; Arch. f. d. ges. Physiol. (Pflüger's) **126:** 483, 1909; **128:** 222, 1910; Zentralbl. f. Biochem. u. Biophys. **11:** 724, 1911; Zentralbl. f. Physiol. **24:** 635, 1910; **25:** 465, 1911; Arch. f. d. ges. Physiol. (Pflüger's) **144:** 135, 1912; **150:** 136, 1913; **178:** 214-327, 1920.

ity. Zeliony and Savitsch[16] have presented evidence that supports the existence of a local reflex mechanism. Ivy and Whitlow,[18] working on dogs with partially denervated pyloric pouches, and Lim,[18] making observations following the transfusion of fed blood, obtained results that did not support a humoral mechanism. Lim, Ivy and McCarthy[11] have advanced the hypothesis that all stimuli that excite gastric secretion act essentially by increasing the active blood flow through the gastric glands, but they do not hold this view to the exclusion of others.

Recently we[19] have performed long time (three days) cross-circulation experiments on Pawlow pouch dogs, the results of which possibly suggest, but do not warrant, the conclusion that a humoral mechanism is concerned in the genesis of gastric secretion.

Within the last seven months, Mr. J. I. Farrell and I have been successful in transplanting by a two-stage operation a gastric pouch (Fig. 2) into the mammary gland of four dogs. We have found that the transplanted pouch secretes a gastric juice containing free acid from two to six hours after a meal. Such a pouch, although somewhat refractory, responds to "gastrin" and histamin administered subcutaneously.

Table 4.—*Gastric Secretory Response of a Transplanted Gastric Pouch Dog*

Procedure	Time	Gastric Secretion: Amount, C.c.	Gastric Secretion: Free Acid	Gastric Secretion: Total Acid
Response to Meal Ten Days after Second Operation Completing the Transplantation				
Continuous Meal at 9	7:30-9	3.0	0	0.009
	9-10:30	1.5	0	0.063
	10:30-11:30	1.1	0	0.063
	11:30-12:30	1.5	0.082	0.173
	12:30-1:30	1.8	0.091	0.182
	1:30-3:00	2.3	0.091	0.145
	3-4	1.7	0.100	0.145
	4-5	1.4	0.073	0.218
	5-6	1.9	0.082	0.182
	6-7	0.9	0.036	0.110
	7-8	0.8	0.036	0.073
	8-9	1.2	0	0.091
	9-10	0.3	0	0.036
	10-11	0.8	0	0.036
Response to Meal Three Months after Second Operation Completing the Transplantation				
Continuous Meal at 11	9-11	0.7	0	0.009
	11-12	0.8	0	0.018
	2-4	1.5	0.027	0.082
	4-5:30	2.2	0.027	0.082
	5:30-7	2.5	0.063	0.127
	7-11	3.0	0.063	0.118

The foregoing observation is, we believe, unequivocal evidence that a humoral mechanism is concerned in gastric secretion. It does not, however, prove or disprove a hormone or a secretagogue mechanism.

PRACTICAL SIGNIFICANCE

Time and space do not permit a detailed consideration of the causes and mechanisms involved in the various disturbances of gastric secretion observed clinically. We believe that the clinician can take the facts that have been presented above and use them to explain a number of the abnormal conditions of gastric secretion that he observes.

For example, the hypernormal secretion that is associated with pylorospasm or pyloric stenosis can be adequately explained in the following manner: The retention of food in the stomach leads to an augmentation of the gastric and intestinal phases of gastric secretion. The gastric phase is augmented by an increased mechanical stimulation coincident with enhanced motility and blood flow, and by more prolonged action of secretagogues that are naturally present in such food substances as meat, or that result from digestion in the stomach. The intestinal phase is augmented because the chyme is more completely hydrolyzed, as the result of its retention in the stomach, so that when it is ejected into the doudenum it is more readily and rapidly digested. This more rapid digestion in the intestine *means an increase in the* concentration of secretagogues acting on or by way of the intestinal mucosa.

Whether or not an enterologic disturbance causes a hypernormal or hyponormal secretion of gastric juice depends on the degree to which certain variable factors operate, such as the degree of pylorospasm, the amount of diarrhea or time of action of the chyme in the intestine, the amount of putrefaction, the degree of change of permeability of the intestinal mucosa and toxemia, and the amount of passive hyperemia. Some of the factors are positive, leading to hypernormal secretion, and some negative, leading to hyponormal secretion. If the reflex pylorospasm is marked, hypernormal secretion would be observed. If the diarrhea is marked, hyponormal secretion would result, as Ivy and Javois[21] and Ivy, Lim and McCarthy[23] have observed. If the degree of putrefaction is marked, amins being liberated, hypernormal secretion would result, provided the toxemia is not too great. Ivy and Javois have shown that a large number of amins and allied substances stimulate gastric secretion when given by mouth. Active hyperemia would favor secretion; a passive hyperemia would depress. In other words, whether or not an enterocolitis causes a hypernormal or hyponormal secretion of gastric juice depends on the sum total of the positive and negative factors, or the picture that the particular case presents.

Experimentally, it has been found that cholecystectomy,[25] gastric ulcer,[26] pancreatectomy, [27] ligation of the pancreatic ducts (atrophy of the pancreas),[28] appendicitis and visceral adhesions[29] may or may not cause a hypernormal secretion, although a hypernormal secretion is most frequently observed in these conditions. The variations in the experimental results and clinical observations in these and other conditions are to be expected because of the multiplicity of factors concerned in the secretion of gastric juice.

SUMMARY AND CONCLUSIONS

1. Gastric secretion can be divided into three phases with reference to cause: (1) The cephalic phase, caused by (*a*) reflexes through the cerebrum (psychic) and by (*b*) reflexes through the thalamus, midbrain and medulla, excited by the sight, taste and smell of food in the presence of appetite. (2) The gastric phase, caused by (*a*) mechanical distention of the stomach and by (*b*) the action on or by way of the gastric mucosa of substances in the food. (3) The intestinal phase, caused by the action on or by way of the intestinal mucosa of substances in the food or resulting de novo from digestion. Meat is the only food thus far studied that contains a substance that stimulates on contact with the gastric mucosa.

2. A gastric pouch has been transplanted subcutaneously.

3. A humoral mechanism is concerned in gastric secretion.

---

[25] Meyer, Jacob; Ivy, A. C., and McEnery, E. T.: Effect of Cholecystectomy on Gastric Secretion, Arch. Int. Med. **34**: *129* (July) 1924.

[26] Dragstedt, L. R., and Vaughn, A. M.: Gastric Ulcer Studies, Arch. Surg. **8**: 791 (May) 1924. Hardt, L. L. J.: Am. J. Physiol. **40**: 314 (April) 1916.

[27] Steinberg, M. E.: Am. J. Physiol. **56**: 371 (July) 1921.

[28] Blomberg, Comstock, Fauley and Ivy, to be published.

[29] McWhorter, G. L.: Am. J. Med. Sci. **155**: 672 (May) 1918.

THE POOR RISK FOR SURGERY OF THE PELVIC ORGANS*

JOHN G. CLARK, M.D.
PHILADELPHIA

[Editorial Note.—This paper together with the papers of Drs. Walters and Mayo, and Lahey, which follow it, conclude the symposium on the "Poor Surgical Risk." In our last issue we published the papers of Drs. Thalhimer, Jones, McKittrick and Root, and Orr and Haden.]

Within the last decade there has been a radical change in the point of view concerning surgical contraindications because of the incalculable improvement in the choice and methods of administering various anesthetics. Formerly the selection lay between chloroform and ether. The first, because of its subtle and catastrophic dangers, was gradually eliminated as a routine drug, for, in addition to the immediate risks attending its use, laboratory investigations have revealed the frequency of toxic lesions occurring in the liver and kidneys, ranging from minor to major issues, indeed to as lethal an event as acute yellow atrophy of the liver.

Chloroform has therefore lost its place of equality as a surgical and obstetric anesthetic, and has fallen into the discard, ether taking its place. With junior residents of little or no experience as administrators of this drug it, too, although provocative of fewer immediate fatalities, was followed by a large number of serious sequelae, such as bronchitis, pneumonia and nephritic disturbances. Experience has shown that the grave dangers of ether are largely dependent on lack of skill in its administration, and they have noteworthily been minimized through the substitution of efficient anesthetists for untrained novices. Every well equipped hospital now accepts without question the necessity for a specialized administrator of anesthetics, and, under this plan, if a student or junior intern functions as an anesthetist, it is only under the direct supervision of such an expert.

In this prefatory statement, one may easily read between the lines and see that the lesser degrees of cardiac, pulmonary and nephritic lesions, which a decade or more ago stood in the first rank of conditions very positively barring the use of any anesthetic, may largely be discounted now unless of exaggerated gravity, such as when there is a failure in cardiac compensation; when the pulmonary lesion is of acute or advanced type; when the nephritic disease is so critical that the kidneys are on the verge of a breakdown, or when the pathologic lesion is in the terminal phase of arteriosclerosis. Under the expert administration of ether, imperative and even elective operations may with relative safety be performed, even in the presence of conditions which formerly would have been recorded as absolutely prohibitive.

As one views this change in attitude, therefore, it is attributable not so much to a reversal of position as to an amelioration of the graver forecasts through the judicious care and protecting skill of well trained anesthetists. Further to reduce to a minimum the risks of complete ether anesthesia, in many clinics nitrous oxid or ethelene gas is now largely carrying the anesthetic burden. Again, the use of local and spinal anesthesia is bulking much larger in surgical literature than formerly, and even when not employed as a method of choice in routine work they, nevertheless, may be chosen in a particularly grave case with a definite reduction in mortality in which any form of inhalation anesthesia is fraught with undue hazard. Of all methods, spinal anesthesia requires the greatest skill in its manipulation and will probably never obtain general vogue.

It is not my desire to discuss the relative merits of various anesthetics, but my chief purpose is to point out the crying necessity for the greatest possible skill in their administration. Because the anesthetist today occupies a premier position in the staff of surgical assistants, the frequency and gravity of postoperative sequelae, so far as the patient's general condition is concerned, are reduced to a minimum, provided the patient has had a careful preoperative study. Again, a very urgent necessity is the more careful preparation of patients for operation, or, as Crile has so picturesquely put it, the preparation of the patient for the storm. Less drastic purgation is now the rule, especially when induced within twenty-four hours before the operation, and the greatest care is observed in increasing the water intake both before and after an operation.

In my experience the best insurance against renal and intestinal complications is the administration, by enteroclysis, of a liter of sodium bicarbonate solution (2 per cent.) with 2 ounces (60 c.c.) of paraffin at the completion of an operation, while the patient is in the Trendelenburg position and still under anesthesia. The paraffin is floated up to the cecum, and remains there as an excellent lubricant and as an inhibitor of fermentation and gas formation, which aids in the easy movement of the bowels on the morning of the fourth day, and does not hinder the absorption of water in the colon. A light laxative or a simple enema is all that is necessary to promote defecation. Tympanites is almost completely eliminated, and through this storage of a large quantity of water, the renal function is doubled, vesical irritability is minimized through the increase in the amount of urine, and thirst is completely or largely abrogated. In this way the rectal drip method may practically be eliminated as a part of postoperative technic, except in cases of peritonitis. This relatively simple concluding method of replenishing an aqueous deficiency, which occurs in all operations, is most valuable in the promotion of a smooth postoperative convalescence.

While the surgeon of today stands in much less apprehension of these older fashioned contraindications, the general physician, with tragic memories of the sudden deaths that occurred when the stage of excitement was considered a normal concomitant of etherization, still lays particular stress on watching the heart and with much anxiety maintains an attitude of eternal vigilance on the pulse during the course of an operation, not infrequently to the embarrassment of a good anesthetist, whose most important function is the supervision of the cardiac function and its periodic registration on the anesthetic chart. So-called heart failure is the very last danger that the surgeon anticipates, for experience has amply taught him that this is decidedly a minimum risk; for in most cases in which there are preoperative cardiac manifestations, under the quieting effects of a well administered anesthetic, especially if it has been guarded by a preliminary hypnotic, these will fade away and an excellent heart action will supervene. The rapidly revolving wheels get a good grip on the track, and the anesthesia progresses without further anxiety.

---

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

For the same reason that this risk has almost dropped to nil, so, too, renal complications, when properly estimated, have ceased to cause anxiety. With the methods now available for estimating the excretory function of the kidneys, there is little excuse for postoperative renal complications. It is my purpose to treat in this sketchy fashion some of the so-called complications of older vintage, and draw the conclusion that these risks should no longer cast a pall over surgical judgment, for they are now chiefly chargeable against injudiciously chosen and unskilfully administered anesthetics rather than to the inherent dangers of the anesthetic. Fortunately, this doctrine has now been accepted widely among our hospital administrators. For the layman who once falls afoul of a badly given anesthetic, and later experiences the relative comforts of its skilled administration, realizes the vast difference between two such ordeals; for one is a horrid nightmare with a waking agony, the other a pleasant dream and a return to consciousness by a relatively easy road. Above these general experiences, the trial balance of hospital records and follow-up notes which now sit in judgment show an amazing difference in postoperative complications, in comparison with former analyses of similar cases of past years.

Experience, therefore, teaches that it is the preliminary study and adequate preparation of patients for an operation; the employment of a first class anesthetist, and the shielding of the unconscious patient from avoidable risks that are the combined factors which have reduced some of the grave contraindications of other years to the rank of lesser dangers, and have removed others from this list entirely. As many of these points have already been comprehensively considered in other papers of this symposium, I shall pass to an issue which has in former years been considered altogether too lightly, but now emerges as of capital moment. Experience has taught that the surgical novice, and all too frequently the more experienced surgeon, regards the human body as an assembled mechanism, which requires only the adjustment or repair of this or that compotent organ in order to make the whole function properly, little or no regard being paid to that more or less occult psychic or nervous influence which to the best of surgeons and physicians is ill defined, and yet is of such potent value in the well adjusted recovery of a patient.

Unfortunately, we have no instrument which will give an estimate of the potency of this vital factor, as the electromotor will test the strength of a storage battery, and one is forced to fall back on much cruder methods for the calculation of this essential biologic force. Because of the lack of scientific methods of measurement, its estimation falls more within the range of the intuition of the physician or surgeon, or, perhaps better stated, must rest on his good judgment as to the vital resistance and nervous stability of the patient. A large percentage of medical and surgical cases fall more or less among the so-called neurasthenic group. Some patients have actual and definable lesions, which are provocative of their disturbed nervous equilibrium, and it is, therefore, acquired; others are the victims of apprehension while in a large proportion the mechanism for the production of vital force is congenitally deficient. The human body may be well constructed so far as any ascertainable fault in any organ is concerned, and yet under unusual stress its vital force fails, just as the power of an automobile ebbs when its batteries are rendered inefficient through use or are deficient from the start. The first battery may be repaired, but the second, until replaced by a more powerful one, will never serve except under light demand.

In this realm of physiology, a vast field of research is as yet untilled. The present era sees our profession on an extensive hunt for foci of toxic emanations, and all nervous persons are being combed from head to foot for these sources of malign influence: a veritable chase of the jack o'lantern in many instances, while in others, much good is accomplished when a real, noxious cache is unearthed. Too frequently, however, the physician in this search, like the prospector of former days, digs deeply, and joyously believes that he has located a great find, only to learn later that it is fools' gold.

In reviewing the history of gynecology, the mobile retroversion, the movable kidney, the simple lacerated cervix without erosion, etc., have served as starting points for many useless, and, therefore, harmful operations; but experience, while slow in its evolution, has greatly diminished this type of baneful specialized carpentry. One would think this a boon to womankind, and so it has been until this new toxic surge carried this same ailing class over into the dentist's and tonsillectomist's offices; indeed, this new cult is much more encompassing, for it is now bisexual, since men are now caught in the same drag-net. The day was when a surgeon was classified as a radical because he had to urge an operation on the physician; now the judicious surgeon has become a conservative and must exercise great caution in not being forced by an overly enthusiastic physician or importunate patient into an operation for the elimination of so-called toxic influences while the surgeon's experience tells him this decision is based on fallacious reasoning. Today, one encounters physicians, and occasionally a gynecologist, who are stressing the importance of the cervix as a danger area. There can be no question that the lacerated cervix with everted and hypertrophied glandular tissue which is the seat of chronic infection, causing a profuse leukorrhea, should have surgical treatment, for this is a pathologic entity which of itself requires correction, and it may actually be the source of toxic emanations capable of exercising evil effects on the body at large. Beyond this point, however, one dares not go with any degree of safety, for any operation that is not beneficial is actually more or less harmful, and this is particularly true of women who have fixed impressions that the genital sphere is the center of their ailments.

Reference is made to this danger, because I have already been consulted by numerous unmarried women suffering from nervous disturbances, ranging from a simple break in mental balance to well defined melancholia, who either have had the cervix amputated or have been advised to undergo this operation when there has not been the slightest symptomatic hint or vaguest evidence that there was any infection whatever in this area. A timely warning to the gynecologist of this danger is well worth while, but as yet I believe he has not been greatly involved in this prevailing toxic fad. An operative lust is created in many neurotic persons by surgical failures, for each operation merely sinks them deeper in the dismal mire, and yet they vainly continue to hope for a chirurgical limelight to effect their deliverance.

The grave and somber visaged Kocher once perpetrated a surgical joke which obtained widespread newspaper currency. A man who had focused his neurotic vision on his abdominal organs had collected numerous abdominal scars in the surgical clinics of Europe. At last he drifted into Kocher's clinic, and his history depicted so classic a set of symptoms that Kocher was induced to make still a fifth incision. Nothing justifying an operation was found, and Kocher announced that he was now given an opportunity to try a novel operation for the comfort and convenience of an introspective neurotic patient. He proposed to work button holes in one edge of the incision and sew buttons on the other so that in the future a rapid peritoneal survey would be easy at any moment and the patient would no longer be put to the necessity of an expensive exploratory incision.

One of the greatest values of a follow-up system is its revelation of the fallacy of operation performed on the congenitally or chronically neurotic individual. Symptoms directly referable to a given organic lesion may be cured, but the neurotic stigmas, just as the leper's spots, are not effaced. The automobile owner may replace a poor battery with a good one and his motor is restored to its normal horse power, but no surgeon is clever enough to perform a similar feat on a neurotic patient. Too often we attempt to correct this defect in the central nervous system by tinkering with its peripheral mechanism. As the surgeon of experience observes this intensive research for toxic foci, he is likely to conclude that it is merely a variant from the old theory that gastric symptoms were often reflex manifestations of pelvic lesions, a delusion that has been dispelled by the progress of surgery in the upper abdomen. A toxic obsession may have replaced that of the reflex hunter, but out of this intensive search for the cause of many ill defined symptoms limited good will come, as it always does, with the passing of medical fads; but the violence of such a flood tide will leave many derelicts in its wake.

2017 Clark Street.

ABNORMAL FUNCTION OF THE LIVER[*]

WALTMAN WALTERS, M.D.
AND
WILLIAM J. MAYO, M.D.
ROCHESTER, MINN.

Life depends on the oxidation of carbon. Carbohydrates are used as glucose, stored as glycogen in the liver, and the excess deposited in the body as fat. Unfortunately, fats cannot, to any considerable extent, be reconverted into glucose; furthermore, sufficient glucose must be available to maintain combustion of fats; otherwise the higher fatty acids will not undergo complete combustion, and acetone and diacetic acid will appear in the tissues and cause a toxemia, which in the more severe grades may terminate in coma, as in cases of diabetes.

On the contrary, proteins can, to a considerable extent, be converted into glucose, but they contain nitrogen. Under stress, as in cases of starvation or hepatic disease, sufficient glucose is not available; the protein tissues of the body are broken down for the purpose of producing the necessary glucose, and the resultant excess nitrogen must be excreted in the urine as urea and ammonia. The kidneys may be unable to excrete this excess of nitrogen, which then accumulates in the blood, for the most part as urea, and a small percentage as creatinin, producing toxemia of which uremia is a manifestation.

GLYCOGEN FUNCTION

Claude Bernard was the first to call attention to the fact that the liver is a storehouse for sugar, receiving it from food and distributing it to the tissues of the body as it is required for the production of heat and energy. Diseases of the liver that produce changes in the liver cells, thus destroying in part this ability to store and distribute glucose to the tissues, result in toxemia, of which acidosis is a type, because of the incomplete combustion of fats and the overproduction of protein waste in Nature's attempt to supply the lacking glucose. Abnormal function of the liver may occur without evidence of hepatic disease, for, if the liver is not able to supply glucose to the tissues when they have been depleted by undue muscular activity, postoperative shock or the toxemias of pregnancy, acidosis will likewise result. Levine, Gordon and Derick,[1] in a study of a group of runners participating in an American marathon race of 25 miles, showed that the condition of the runner at the finish of the race and the level of his blood sugar were closely correlated. Those who had extremely low blood sugar levels presented a picture of shock not unlike that produced by an overdose of insulin, while the winner of the race and two others who finished in excellent physical condition had comparatively normal blood sugar values.

Wilder, in preparing diabetic patients for operation, reduces the carbohydrate intake sufficiently to render the urine comparatively free from sugar. Then, to prevent postoperative acidosis, 100 gm. of carbohydrate is given each day for five days immediately prior to operation, and again after operation, injections of insulin to burn the excess glucose being used. Adams and Wilder[2] report 141 major operations with but four deaths, a practically normal mortality for comparable operations on nondiabetic patients.

In the condition of postoperative shock, in cases of starvation acidosis, and in the toxic vomiting of pregnancy, the liver does not contain sufficient glycogen to supply the necessary amount of glucose to the tissues to prevent the evil effects of hypoglycemia. We are indebted to Thalhimer,[3] and to Fisher and Snell,[4] for calling our attention to the value of intravenous injections of glucose quickly oxidized by injected insulin, in the control of postoperative shock, and to Talbot, Shaw and Moriarty,[5] for pointing out the relationship between a decrease in blood sugar and acidosis from starvation, which was immediately controlled by the intravenous injection of glucose. Further evidence of rehabilitation by means of glucose in cases of hepatic dysfunction is confirmed by the experimental work of Mann,[6] who has kept liverless dogs alive for thirty-six hours by means of intravenous injections of glucose solution, whereas if glucose is not administered, the dogs die in convulsions in six hours. Fortunately, we have in chemically pure glucose a substitute for the glycogen stored in the liver from ingested carbohydrates.

---

[*] From the Division of Surgery, Mayo Clinic.

[*] Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Levine, S. A.; Gordon, Burgess; and Derick, C. L.: Some Changes in the Chemical Constituents of the Blood Following a Marathon Race, J. A. M. A. **82**: 1778-1779 (May 31) 1924.

[2] Adams, S. F., and Wilder, R. M.: The Surgical Risk of the Diabetic Patient, S. Clin. N. Am. **4**: 587-593 (April) 1924.

[3] Thalhimer, William: Insulin Treatment of Postoperative (Nondiabetic) Acidosis, J. A. M. A. **81**: 383-385 (Aug. 4) 1923.

[4] Fisher, David; and Snell, Myron: Treatment of Shock with Glucose Infusions and Insulin, J. A. M. A. **83**: 1906-1908 (Dec. 13) 1924.

[5] Talbot, F. B.; Shaw, E. B., and Moriarty, Margaret E.: Hypoglycemia and Acidosis, J. A. M. A. **83**: 91-93 (July 12) 1924.

[6] Bollman, J. L.; Mann, F. C., and Magath, T. B.: Studies on the Physiology of the Liver, VIII, Effect of Total Removal of the Liver on the Formation of Urea, Am. J. Physiol. **69**: 371-392 (July) 1924. Mann, F. C.; Bollman, J. L., and Magath, T. B.: IX, The Formation of Bile Pigment After Total Removal of the Liver, ibid. **69**: 393-409 (July) 1924.

Interesting in this connection is the fact that incomplete combustion of fats may occur when there is too much alkali in the blood, as shown by Kast, Myers and Schmitz,[7] a condition called alkalosis, as well as when there is too much acid in the blood. The reaction of the blood is slightly alkaline and essentially stable, dependent for the most part on the sodium bicarbonate reserve, which is used by the body to combat excess formation of acid or its accumulation in the blood. An increase of acid in the blood produces a slight decrease in its alkalinity, diminishing the ability of the blood plasma to combine with carbon dioxid. This affords a standard for measuring the alkalinity of the blood, the normal combining power of the blood plasma having been determined to be from 56 to 65 per cent. by volume of carbon dioxid. With acidosis present, the combining power may decrease to as low as 10 per cent., while with alkalosis it may increase to 163 per cent. by volume. In a group of eleven cases of tetany the result of high intestinal stasis, studied by Brown, Eusterman, Hartman and Rowntree,[8] seven patients showed a carbon dioxid combining power of the blood plasma of more than 95 per cent. by volume.

Following the work of McCann[9] and MacCallum,[10] Haden and Orr[11] and Dixon[12] have called attention to the decrease of chlorids and increase of blood urea that accompany the alkalosis in cases of postoperative high intestinal stasis, a condition that is adequately controlled by intravenous injections of sodium chlorid and sufficient water. McVicar[13] added 10 per cent. glucose to the sodium chlorid solution, which he has given intravenously to sixty-five patients with toxemia from high intestinal stasis, with satisfactory control of the toxemia. Such chemical control of the toxemias resulting from high intestinal stasis, prior to and following operations on the stomach and duodenum for cancer and ulcer, has been of great value to Balfour,[14] who in 112 consecutive cases of gastric resection had but two deaths. More than half of these resections were for cancer, the remainder for extensive gastric ulcers and gastrojejunal ulcers.

WATER

Water is the second important therapeutic agent in the treatment of the abnormally functioning liver. Water is not only a solvent and diuretic, but its concentration in the blood is a determining factor in the regulation of body temperature, as shown by Barbour,[15] and a diminution of the fluid content of the blood means a decrease in the oxygen carrying power of the red blood cells by reason of increased viscosity. Drabkin and Edwards[16] have shown that with insulin hypoglycemia there is a lack of water in the blood, and Talbot, Shaw and Moriarty[5] found that so long as large amounts of water were ingested and excreted, few subjective symptoms occurred. When the fluid intake was diminished materially, these patients became flushed and anxious or languid and stuporous, but the symptoms disappeared when the fluid intake was increased. As a solvent and a diuretic, water is of great value in the elimination of nitrogenous material, such as urea and creatinin, which accumulates in the blood either as a result of the abnormal destruction of tissue proteins or as a result of failure of the kidneys to excrete accumulating nitrogen. Much has been written in the past about the necessity of maintaining body fluids, for surgeons have noticed that this expedited the recovery of their patients; but the explanation of the necessity of adequate fluids has been obscure.

When the liver is functioning abnormally, waste products of broken down proteins appear in the blood and, unless their elimination is assisted, the failure of the kidney to excrete them may be followed by uremic symptoms. The value of water in preventing terminal renal insufficiency is borne out in the recent work of Walters, Bollman and Kilgore,[17] on experimental duodenal fistulas in dogs. They found that dogs with duodenal and gastric fistulas died in from four to five days after the fistulas were made, and presented the anuric picture of terminal renal insufficiency. An analysis of the blood of these animals showed a progressive increase in the amount of urea in the blood. There was also a decrease in the amount of chlorids and an increase in the alkalinity of the blood. If these animals were given chlorids intravenously, small amounts of water being used as a solvent, there was no noticeable effect on the blood urea and its excretion into the urine, even though the blood chlorids were raised to normal by means of the injection, and the animals did not live longer than those that did not receive chlorids. When, besides the chlorids, from 500 to 700 c.c. of water was injected into the circulation each day, the blood urea dropped. Urine continued to form, and the dogs lived for twenty or more days, during which time there was no evidence of gross renal insufficiency.

Mann[6] has shown that urea was not formed and that there was a progressive decrease in blood sugar in dogs from which the liver had been removed. Clinically, patients with abnormally functioning livers usually have enough normal hepatic tissue to carry on the manufacture of urea, since it has been shown that 25 per cent. of the liver is adequate to maintain life. Consequently, it is to be expected that patients whose livers function abnormally may have normal amounts of urea in the blood unless, or until, the kidneys become affected as a result of toxemia, when the amount of urea in the blood will increase as the excretory ability of the kidneys diminishes.

Fats likewise are oxidized in the body to produce energy, the final products of the oxidation being carbon dioxid and water. The fats of food are split into fatty acids and glycerin by the lipase of the pancreatic secretion, which process is accentuated in the presence of the bile salts. The epithelial cells of the intestinal tract absorb most of the fat. Thence the fat passed through the lacteals and the thoracic duct into the circulating blood, from which it is absorbed by the tissues which require it for metabolic processes, within which oxidation occurs. Interesting in this connection is the work of Roger, Binet, and Verne,[18] who found that blood taken from the left side of the heart of a dog contained 14 per cent. less fat than that from the right side, owing to the absorption of that amount of fat by the epithelial cells of the lungs. This hypothesis was substantiated by their microscopic demonstration of fat globules in epithelial cells of the lungs following the intravenous injection of an oily suspension.

---

[7] Kast, Ludwig; Myers, V. C., and Schmitz, H. W.: Clinical Conditions of Alkalosis, J. A. M. A. **82:** 1858-1861 (June 7) 1924.

[8] Brown, G. E.; Eusterman, G. B.; Hartman, H. R., and Rowntree, L. G.: Toxic Nephritis in Pyloric and Duodenal Obstruction; Renal Insufficiency Complicating Gastric Tetany, Arch. Int. Med. **32:** 425-455 (Sept.) 1923.

[9] McCann, W. S.: A Study of the Carbon Dioxide Combining Power of the Blood Plasma in Experimental Tetany, J. Biol. Chem. **35:** 553-563 (Sept.) 1918.

[10] MacCallum, W. G.; Lintz, Joseph; Vermilye, H. N.; Leggett, T. H., and Boas, E.: The Effect of Pyloric Obstruction in Relation to Gastric Tetany, Bull. Johns Hopkins Hosp. **31:** 1-7 (Jan.) 1920.

[11] Haden, R. L., and Orr, T. G.: The Use of Sodium Chlorid in Treatment of Intestinal Obstruction, J. A. M. A. **82:** 1515-1517 (May 10) 1924.

[12] Dixon, C. F.: Value of Sodium Chlorid in Treatment of Duodenal Intoxication, J. A. M. A. **82:** 1498-1502 (May 10) 1924.

[13] McVicar, S. C.: A Discussion of the Clinical and Laboratory Findings in Certain Cases of Obstruction in the Upper Gastro-Intestinal Tract; Rôle of Blood Chemistry in Diagnosis, Prognosis and Treatment of This Condition, Am. J. M. Sc. **169:** 224-235 (Feb.) 1925.

[14] Balfour, D. C.: The Sequelae of Gastro-Enterostomy, Ann. Surg., to be published.

[15] Barbour, H. G.: Heat-Regulation Mechanism of the Body, Physiol. Rev. **1:** 295 (April) 1921.

[16] Drabkin, D. L., and Edwards, D. J.: The Production of Anhydremia with Insulin, Am. J. Physiol. **70:** 273-282 (Oct.) 1924.

[17] Walters, Waltman; Kilgore, A. M., and Bollman, J. L.: A Clinical and Experimental Study of Changes in the Blood Resulting from Duodenal Fistula, to be published.

A part, however, of the dissolved fat enters the blood vessels of the intestinal villi and travels by way of the portal vein through the liver to the general circulation. During the absorption of fats, it is said that fat globules may be seen in the liver cells. In dysfunction of the liver, the latter process must suffer interference when, as a result of acute disease of the liver fat may remain in the liver cells persistently (the condition of fatty infiltration), or the liver cells may be surrounded in the later stages of chronic disease by the strangling clutch of fibrous tissue cirrhosis. Further evidence of the part played by the liver in the intermediary stages of fat metabolism is illustrated by the fact that lecithin, a constituent of bile, is composed in part of fatty acid, and that the amount of microscopic fat present in the blood stream following the ingestion of a fatty meal is decreased in disease of the liver according to Brulé, whose test has been used as a method of determining hepatic function. Whether or not the body converts fat into sugar or glycogen is a question, but, according to Howell, the balance of evidence is against the conversion of fatty acids into sugar.

CHOLEMIA

The term "cholemia" is sometimes used to signify almost any untoward syndrome occurring in the course of hepatic dysfunction or disease. Rightly, cholemia means bile in the blood, and terms such as "cholemic hepatitis" or "cholemic nephritis" would better indicate the existing pathologic condition. In cases of cholemia, the components of bile that interest us most are the bile pigments and the bile acids. Thanks to van den Bergh, we are able to measure quantitatively the amount of bile pigments present in the blood stream. Rowntree[19] and McNee[20] have working methods of measuring bile acids in the blood, but it will require time to determine the accuracy of their tests. King and Stewart[21] believe that bile pigments are the toxic elements in cholemia, and they have presented numerous experiments upholding their view. On the assumption that bile pigments are rendered less toxic by calcium, they used calcium to neutralize the pigments. Lee and Vincent[22] directed our attention to the value of intravenous injections of calcium as a hemostatic in cases of experimental obstructive jaundice. Thus, during the last four years, intravenous injections of 5 c.c. of a 10 per cent. calcium chlorid solution have been a part of the routine preparation of jaundiced patients for operation, principally because intravenous calcium hastens coagulation in the jaundiced patient, prevents postoperative bleeding, as shown by Walters,[23] and has a detoxicating effect on the bile pigments. Besides an intake of from 3,000 to 4,000 c.c. of water, a carbohydrate diet and large quantities of glucose are given by mouth and by proctoclysis. Judd[24] reports 142 rehabilitated cases in which the common duct was operated on in 1924, with a mortality rate much lower than in previous years; 104 of the patients in this series were deeply jaundiced. Further, because of this rehabilitation, it was possible to operate on patients who were formerly considered beyond aid.

METHODS OF STUDYING HEPATIC FUNCTION

Failing hepatic function is not easily diagnosed. Close study of the patient with abnormal hepatic function by the clinician and the surgeon, combined with laboratory studies of the chemical concentration of bile salts, bile pigments, glucose, and the nonprotein nitrogen in the blood, will aid greatly early determinations of failing hepatic function. Moynihan[25] describes the clinical picture of hepatic insufficiency following operation on jaundiced patients as follows: "There is a paling and thinning of bile drainage with an increase in its flow. Restlessness, irritability, great fatigue with weakness on exertion and vomiting occur, while throughout, the urinary output remains proportionate with the fluid intake and the retention of urea in the blood is practically normal." McVicar[13] and Judd,[24] in studies of changes in the blood as a part of this picture of failing hepatic function, sometimes found acidosis and sometimes alkalosis. There was prompt response to the administration or replacing in the blood stream of sodium bicarbonate and glucose to control the acidosis, and of sodium chlorid and glucose to control the alkalosis, the glucose being used in both instances to supply the tissues with sugar, which was lacking because the disordered liver could not supply it.

Rowntree[19] discovered that the dye phenoltetrachlorphthalein was excreted for the most part in bile. Rosenthal's[26] test is based on the fact that the normal liver removes all but 3 per cent. of this dye from the blood stream in fifteen minutes after its intravenous injection, but if the liver is diseased, there is retention of the dye in the blood stream proportionate to the extent of the damage to the liver. When it is shown that the hepatic function is greatly reduced, and the patient's general condition is poor, a graded operation, as advised by Crile,[27] would be indicated.

Rehabilitation in cases of abnormally functioning liver has enabled us during the last year not only to perform operations more safely, but also to extend the operability to include many patients who heretofore would have been denied operation because of the grave risk entailed.

---

[18] Roger, H.; Binet, Léon; and Verne, J.: La lipoidérèse pulmonaire, J. de physiol. et de path. gén. **21**: 461-465, 1923.

[19] Rowntree, L. G.: Personal communication to the authors.

[20] McNee, J. W.: Personal communication to the authors.

[21] King, J. H., and Stewart, H. A.: Effect of Injection of Bile on the Circulation, J. Exper. Med. **11**: 673-685, 1909.

[22] Lee, R. I., and Vincent, Beth: The Relation of Calcium to the Delayed Coagulation of Blood in Obstructive Jaundice, Arch. Int. Med. **16**: 59-66 (July) 1915.

[23] Walters, Waltman: I, Preoperative Preparation of Patients with Obstructive Jaundice, Surg., Gynec. & Obst. **33**: 651-656 (Dec.) 1921; II, Preoperative Preparation of Patients with Obstructive Jaundice, Minnesota Med. **6**: 25-28 (Jan.) 1923. Walters, Waltman; and Bowler, J. P.: III, Preoperative Preparation of Patients with Obstructive Jaundice. An Experimental Study of Toxicity of Intravenous Calcium Chlorid Used in Preparation of Patients, Surg., Gynec. & Obst. **39**: 200-206 (Aug.) 1924.

[24] Judd, E. S., and Burden, V. G.: Obstructive Jaundice, Am. J. M. Sc. **169**: 888-896, 1925.

[25] Moynihan, Berkely: Secondary Operations upon the Biliary System, Lancet **2**: 4-7 (July 7) 1923.

[26] Rosenthal, S. M.: The Phenoltetrachlorphthalein Test for Hepatic Function, J. A. M. A. **83**: 1049-1053 (Oct. 4) 1924.

[27] Crile, G. W.: Biophysical Law Governing Surgical Mortality, Surg., Gynec. & Obst. **38**: 431-443 (April) 1924.

SUMMARY

The abnormally functioning liver contributes to the accumulation of toxins in the body, which are the abnormal products of fat and protein catabolism consequent on the liver's inability to supply sufficient glucose to the tissues to assist in the combustion of fats and to prevent the abnormal breaking down of body protein. Consequently, intravenous injections of 500 c.c. of a 10 per cent. chemically pure glucose solution may be indicated twice or three times a day to rehabilitate patients with abnormally functioning livers.

A sufficient quantity of water is necessary in these cases to assist in the regulation of body temperature, to assist the red blood cells in carrying oxygen to the tissues, and to assist in the excretion of nitrogenous waste material, such as urea, from the blood.

In the jaundiced patient intravenous injections of 5 c.c. of a 10 per cent. solution of calcium chlorid help primarily to hasten coagulation of the blood, to prevent postoperative bleeding, and to neutralize the toxic bile pigments.

Further experience with tests of hepatic function will be necessary to determine their surgical value in cases of abnormal hepatic function.

THE VALUE OF ORGANIZED SURGERY TO THE POOR SURGICAL RISK *

FRANK H. LAHEY, M.D.

BOSTON

The progress of surgery within the last few years has been extraordinary. It has been accomplished through the discovery and development of asepsis, antisepsis and anesthesia. These three factors made possible any operative procedure that was practicable with the persistence of human life. A virgin field was thrown open for exploration and development, and out of this development have come to us our present magnificent surgical resources.

It seems possible to us, however, that we are unjustifiably complacent over our past accomplishments and present possibilities. If we critically observe our present position in surgery, we cannot fail to be impressed with the fact that the field for development of new procedures and new methods is no longer virgin; that progress from now on for a time, unless some revolutionary principles not now apparent appear, will be slow compared with that of the last generation, and that we must for some time in the future occupy ourselves in making the best use we can of the remarkable facilities we now have at hand, not the least one of which is the organization of our surgical resources.

Organization in surgery is in process of development. It is to a large extent the logical and inevitable successor to individualistic surgery. It evidences its value and success most strikingly when applied to the poor surgical risk. It has shown and will continue to show mortality rates that are lower than those obtained by the individual working without the aid of organization, and will show this particularly in those cases in extremis which in the past were often rejected as inoperable.

By organized surgery I mean the linking together of the various components of a surgical team wherby the greatest possible degree of opportunity may be offered to the patient who is in such a state as to be deemed a hazardous risk. Such components are:

Preoperative preparation
- Kidneys
- Heart
- Liver
- Blood
- Diabetes

No longer are operations withheld from the middle aged or elderly because of hypertension even with limited kidney function, or even significant kidney failure.

Anesthetist
Assistants
Surgeons
Operating nurses

PREOPERATIVE PREPARATION

Preoperative preparation may not in the strictest sense be considered under the heading "surgical team," but it is in reality a true and most important part of a surgical organization. No longer may one defend his position when operating on a poor risk patient with a low hemoglobin who has not had a blood transfusion previous to operation. It is almost criminal negligence now for a busy operating surgeon or hospital not to have an available list of grouped and tested donors. Diabetic patients cannot be operated on today without thorough preparation for the operative procedure. Possible postoperative complications must be anticipated and measures for their relief must be ready and at hand.

The necessity for preparation and seizing the best opportunities in cases in which heart, kidney and biliary tract are pathologic is so well known that it requires no repetition.

Preoperative study and preparation require no elucidation. While they are in a very large part medical, we have come to learn that the arbitrary separation of the two fields can no longer be made—that medical care, preparation and advice are essentially just as much a part of the surgical organization as are the things we now class as entirely and purely surgical. We have all learned that with the aid of one who is expert in the management of diabetic cases, it has been possible to prepare and care for even the desperate diabetic patient postoperatively so that operations at first apparently not to be considered may be undertaken and safely accomplished in a high percentage of cases with surprising smoothness. We have had it demonstrated to us in a most convincing and amazing way that toxic thyroid patients coming to the clinic in apparently hopeless stages of decompensation, when turned over to the associated cardiologists, can be so prepared that they can withstand subtotal thyroidectomy, regain their cardiac balance, and attain such cardiac ability as to insure almost normal effort and resume their usual earning and supporting capacity. It was, in fact, by attaching a cardiologist to our clinic that there was opened up for us this extremely successful and gratifying group, which we have called the thyrocardiac group.

We have had it demonstrated to us by the association of a gastro-enterologist that the old sharp demarcation in the past as to the medical treatment of gastric and duodenal ulcers was wrong. We learned that while there was some value in the more or less divergent opinions of the enthusiastic advocates of either method of treatment, the truth lay somewhere between the two extremes, and adequate appreciation and assessment of the clinical data could be obtained only when representatives of both groups were working together in an organized way, and tolerantly. We have learned that gastric and duodenal ulcers can be cured medically, and

---

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

that when that method of treatment fails, an operation may be performed with a greater degree of satisfaction, greater security and fewer postoperative complications. We know now that not every pyloric obstruction is in need of urgent and immediate surgery; that many hourglass contractions do not require surgery, and all are now agreed that nearly all gastric hemorrhages are best placed in the hands of the gastro-enterologist.

We have likewise learned that an organization is better fitted to keep patients "up to scratch," so to speak; that they absorb a spirit from association with other persons under the same management which promotes a closer adherence to the plan of treatment and follow-up. Without this spirit on the part of the patients, we feel that we would not have been able to make our desperate thyroid risks accept divided stage procedures and follow-up basal metabolism tests to make sure that they were remaining well. Without this spirit they would be unwilling to submit to further operations, if they were not completely relieved by the original one. We would not, without this spirit and organization, have been able to keep our stomach and duodenal patients on medical management over such periods of time as to convince ourselves of the feasibility of medical management or the need of surgery.

These are but a few of the instances illustrating the value to us of the advantage of medical association in a surgical organization.

Finally, before leaving this topic, I again wish to emphasize the fact that I am convinced that many of the apparently hopelessly divided opinions in medicine and surgery, of which there are fewer and fewer, will be fused or discarded as representatives of each group observe their results jointly. Constant close affiliation tends largely to smooth out conflicting opinions, reveals the uncertainty of both opinions, or demonstrates the obtuseness of their advocates.

ANESTHETIST

We have never considered the value of surgical organization in our clinic without being at once impressed with the value and need of the trained and experienced anesthetist who devotes his thought and interest solely to this field. Holding the views that we do regarding the place of the anesthetist, we have endeavored to assign to the anesthetist the greatest possible degree of responsibility. We believe that although the field of the administration of anesthesia has become so broad that it requires the entire time of a person to follow it and make himself conversant with the variety of methods, there are great responsibilities outside this realm of the department. We have maintained that the decision as to the type of anesthesia should be largely decided by the anesthetist, only after a conference with the surgeon who is familiar with the extent and magnitude of the contemplated operation, the necessity of entirely completing it, or the possibility of modifying it to fit the possible limitations of the method of anesthesia.

Beyond this, however, we have firm convictions that an important function of the anesthetist is to follow closely the general condition of the patient, particularly the bad risk, to assist materially in determining immediately before the patient is operated on, while on the table in the condition under which he or she must endure the procedure, whether or not a complete surgical procedure may be undertaken, or a lesser one instituted. We have today such a variety of preliminary procedures that it is often the anesthetist's function in bad risk cases to advise us as to the necessity of selecting one to apply to the person rating below the average risk. This decision we have often found to be the deciding factor as to success or failure in the bad risk case. We insist that the anesthetist observe and note on his record the degree of postoperative reaction, shock, etc., in order that he may develop a background of experience on which to draw for future decisions in advising the limitation of contemplated procedures. We insist that he acquire an approximate estimate of the time that given surgical procedures require in our hands; that he become familiar with the different stages of the operative procedures, so that he may roughly estimate the time still necessary to complete them, and that he make complete use of all methods of aid in determining the immediate condition and prophesying the probable later effect as the operation continues, such as blood pressure, pulse pressure, color, breathing, course and difficulties of the anesthesia. Further, we insist that he shall be in such contact with the patient preoperatively and postoperatively that he shall represent an individual and a personality to the patient, not a machine-like adjunct to the surgical procedure, which induces unconsciousness in the patient and then disappears from the horizon. In addition to this, he must follow closely the developments in anesthesia, assimilating gradually and cautiously those which will be of service and diminish the danger in the bad risk. He must keep accurate records as to outcome, complications and results, so that we may confirm or contradict impressions as to the best methods to employ in the doubtful cases. We have in the past too often permitted our procedures to be dictated by impressions rather than by impressions checked by actual fact, a plan, particularly in the poor risk patient, by no means justifiable.

Can the requisites stated above be obtained in an anesthetist? Yes, though not always as ideally as stated. But the more organized and the more closely associated the surgical organization, the nearer the ideal may be attained; and the nearer it is attained, the better will be the results in a large series of cases in which the poor risk patient is submitted to surgery under this arrangement.

There are today many surgeons acutely aware of the need of improvement in their anesthesia and anesthetist, and anxious to develop and employ such aids to their patients and poor risk subjects; but because of the fact that their consultants and patients are not familiar with or educated to the advantages of these measures, the surgeons are not in a position to insist on them. It is the duty, I believe, of those of us who have been so fortunate as to be permitted to develop surgical organizations to take every opportunity to demonstrate to the medical public the marked advantage and absolute need of expert anesthesia, in order that there may be a still greater application of the value of such service, and to make it easier for surgeons to develop organizations.

ASSISTANTS

As to assistants, little need be said. There are few who will deny the value of trained and experienced assistants in expeditiousness, thoroughness and life saving. An assistantship is in reality an apprenticeship in surgery, and this apprenticeship exists today in two forms: one, the house officer position, and the other, either the residence or assistantship of several years, ending in a probable association in surgery in the surgical organization. The house officership is of value in that it gives a foundation of surgical training to a large number of men; but it turns them out into the world still relatively inexperienced in the actual practice of surgery.

The long term assistantship or residence endeavors to select from the first group those with the most evident surgical ability, and through longer association as assistants to impart to them greater and greater experience, surgical judgment and actual operation experience, until they are often trained surgeons of experience and judgment much earlier in life than were the surgeons of the past few years under the older method of training. This we believe to be a highly desirable arrangement, as it provides longer years of availability of the given surgeon's skill in his community, places him in surgery during his most capable years physically, and during the period when his enthusiasm and energy are at their highest pitch.

These, then, are the types of assistants that we all seek and that are of the greatest value in the poor risk cases. I do not mean to state that a large number of most excellent surgeons will not develop under the first mentioned house officer system. I do believe, however, that organized surgery with its trained teams and its slowly rotating assistants will and does show highly desirable results, particularly in the bad risk cases.

OPERATING NURSES

The situation as to operating nurses in an organized surgical team is in general respects similar to that of surgical assistants. All nurses are given operating room training, and are eventually in most instances given charge of an operating table, irrespective of the seriousness of the case, regardless of their aptitude for the work, and quite apart from whether or not they will ever again employ the knowledge. This routine assignment of nurses often seriously handicaps the surgeon occupied in attempting to operate successfully on a person who is so close to the borderline that slight surgical handicaps deflect the patient's course in an undesirable direction. This difficulty we have attempted to overcome in a manner that still maintains the surgical organization and still gives to the nurses the advantages of operating room training, by employing permanent operating table nurses and training our undergraduate nurses by having them participate under our permanent operating nurses, from whom they receive instruction. We believe that this has proved better for us and has resulted in more satisfactory experience for the nurse than may be obtained under an anxious and harassed surgeon or from a nonparticipating nurse instructor attempting to oversee two or three operations at one time. It also results in a much more satisfactory surgical organization.

COMMENT

A surgical organization is applicable to any situation in the practice of surgery, but must be necessarily modified the less centralized it becomes, and, conversely, the organization may be more closely knit, and more highly organized the more centralized it is.

We were led to centralization of surgery in the beginning by the needs of the bad risk cases coming to our clinic, and from the success and satisfaction resulting from this centralization we have been led gradually to the almost complete centralization of our surgery. The only exceptions are emergency surgery and the necessity of supplying consulting surgeons to a few suburban hospitals, which is done by the junior members of the clinic.

We realize the objections that may be brought up concerning this organization of surgery. One is that it represents group medicine.

Our view is, however, that it does not represent and is not intended to represent group medicine. It is intended solely as a group to facilitate the practice of surgery; to divide the burden of responsibility, and to make applicable to a given person a wider scope of knowledge, training and experience than is possible for one person to acquire, retain and apply. It is not intended or constructed to increase the number of patients coming to the clinic by covering numerous fields, but to attain efficiency for these patients coming to the clinic for surgical treatment. If it does indeed increase the number of patients coming to a given clinic, it does so because the patients or their physicians believe that there are desirable advantages in surgical organization, demonstrable by low mortality rate, good results and critical study. We do not mean to imply criticism or to insinuate aspersions in any way concerning the surgeon who operates today as an individual, with perhaps an assistant only as a nucleus of organization. We realize that there are trying community difficulties for the person endeavoring to organize his surgery; that early in a surgeon's career it is not possible to afford even a small organization, and that in certain communities it requires courageous enthusiam up to the point of jeopardizing one's practice to undertake organization, to refuse to operate on patients in outlying hospitals and communities, to reject the services of physicians close to the patient but undesirable from the point of view of marked efficiency, and to refuse the request to operate on patients when they may be close to their families at the expense of increased risk. There are, indeed, innumerable natural and artificial obstacles in the path of the development of surgical organization; but I am firmly convinced that it is in process of supplanting unorganized surgery; that it gives to the poor risk patient better chances of recovery; that it tends to make better surgeons earlier in life; that it produces greater progress in surgery; that it is applicable with temporary modifications to any field of surgery from that in a large and prosperous community to that in rural communities of limited financial resources; that it lends added pleasure and enthusiasm to the practice of surgery, and that it develops means, measures and methods that are of definite and distinct benefit to the so-called poor risk patient. I believe most firmly that it should and eventually must be the aim, perhaps not always completely obtainable, of all who practice surgery today, and that the value of organization in surgery will reveal its greatness most markedly in those cases termed the poor surgical risk.

638 Beacon Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. THALHIMER; JONES, MC KITTRICK AND ROOT; ORR AND HADEN; CLARK; WALTERS AND MAYO, AND LAHEY

Dr. Leon T. LeWald, New York: I would like to discuss particularly Dr. Jones' paper because the other day I had a case of diabetes referred to me for the determination of gallstones. We failed to find any evidence of gallstones but we found one of the most advanced cases of pyloric stenosis that we have ever seen. In questioning the patient as to the determining of the diagnosis of diabetes, we found it was entirely based on a high blood sugar which had been made as a routine examination. On further questioning we found that he had been told to present himself at a time at which his stomach was supposed to be empty, namely, three hours after his breakfast, but the roentgen-ray examination showed that his stomach was never empty at any time at which he presented himself for blood sugar determination. The roentgen-ray examination over a period of several days showed that he always had at least a forty-eight hour retention in his stomach. The determination of high blood sugar, based on a supposedly fasting stomach, was inaccurate. I am wondering whether a cure of his diabetes might not be obtained by a gastro-enterostomy; in other words, whether it is not simply a case of faulty metabolism, the starvation giving a pseudodiabetes. One other point in Dr. Clark's paper was of exceptional interest to me because of some thirty thousand gastro-intestinal examinations in the New York University Hospital. At one time a young woman who had some digestive disturbance came to me. Several years later she came back because she had headaches. She had been examined by another physician who had told her that she was neurasthenic and probably had some focus of infection, such as Dr. Clark has described. She had her teeth removed and she was no better. Then he told her she would have to have an operation on the cervix. She asked me at that time whether the physician could tell that without an examination of the cervix. She declined to have any operative procedure. She was then given an intestinal examination and it was found she had an intestinal toxemia, which was relieved by a medical man.

Dr. Robert L. Dickinson, New York: I have visited staff reviews in forty-four hospitals to see how closely the requirements of the American College of Surgeons on "review and analysis" are really carried on. My report is printed in the recent hospital conference report of the college. There were four types found. The first type of hospital holds a "conference" on two or three interesting cases, with no presentation that bears on mortality or morbidity. When one makes such a criticism to the trustees he is told that this meets the requirements of "review and analysis." The second type is the white-washing committee. The third goes to the other extreme and is a criminal court for any one who loses a patient. The fourth is a sympathetic and critical review and analysis of every death and casualty. The surgical audit that is analogous to the financial audit is bound to come. In order to make a standardized analysis, the American College of Surgeons should be willing to take up the collection and publication of operative and post-operative statistics. This has been put up to them for years and will be put up again at the fall meeting. If the college declines, then I shall seek to have it brought up next year before the House of Delegates of the American Medical Association and ask that you undertake such a collection and publication. Then you and I will know and our trustees can tell whether our post-operative work and our morbidity are up to the standard. It is the medical man who sees the failures. Failure fails to come back to the surgeon in a considerable percentage of cases unless he has a perfect follow-up. Excessive and incompetent surgery must be curtailed. Publicity is the only cure.

Dr. J. B. De Lee, Chicago: It is a little bit surprising that in this symposium the obstetric risk was not included, and I therefore take the opportunity to supply the deficiency because in my opinion every woman who becomes pregnant becomes a risk to a certain degree; indeed, everything that has been said by the surgeons, the internists, the laboratory men, the roentgen-ray men, the gastro-enterologists applies twice to the woman who has started out on the reproduction of the species. In addition to all these elements of danger which have been already considered, there are particular and individual ills that the pregnant woman suffers which have a distinct and unfortunately a very serious bearing on her health and the health of the baby, not to say their lives. In the first place there is the nervous element, a period of nine months of expectancy more or less attended by fear and trepidation. This period is also attended by physical disturbances, such as gastric. During labor she is affected by other conditions which have a distinct bearing on every organ in the body. In the first place, she approaches labor with a degree of acidosis, which was demonstrated by Couvelaire in 1895. The time of labor is characterized by the element of pain, by the element of muscular exertion first on the part of the uterus and then on the part of the abdominal muscles and all the muscles accessory to the powers of expulsion. We know that muscular exertion persisting over a period of hours adds to the metabolic disturbances. Then, in addition to that, the heart must accommodate itself to disturbances of the statics of the abdomen, disturbances in circulation. It is no wonder that the balance of the circulation is easily upset. Increase in blood pressure is only one evidence. A sudden drop in blood pressure throws a strain on the heart and the integrity of the blood vessels. There is also a nervous imbalance. Labor might be likened to an orgasm with a gradual increase of nervous excitation and great exaltation followed by sudden relief and relaxation. The mind of the woman requires very great watchfulness to prevent nervous collapse. Hemorrhage and shock, which the surgeon has to fear, the obstetrician likewise has to fear. Prolonged labor increases this bad risk. The exhaustion, the suffering of a long labor predispose to sepsis, to shock, and both dangers are augmented by hemorrhage. It is said that pregnancy is a normal bodily function. That is very true if everything natural is considered normal. As soon as a woman conceives, she might be likened to an individual transplanted into another environment. Biologists tell us that when an individual is transplanted into another environment one of three things occurs: Either the individual adapts himself to the environment, or he moves away from it or succumbs to the hostile environment. The same thing occurs to the woman. Fortunately, however, she adapts herself to the hostile environment. Most of the troubles of the pregnant woman are due to errors in the process of adaptation to environment. These are the things that bring the subject of the obstetric risk into this symposium. The damaged heart, the damaged lung, the damaged kidney, nervous system and thyroid must be all studied by the obstetrician if he is going to carry his patient through labor successfully.

Dr. J. A. Ruben, Pittsburgh: It is the decomposition of proteins in the obstructed intestine that makes the patient with intestinal obstruction a poor risk; the higher the obstruction, the poorer the risk. The contribution of the sodium chlorid treatment, the work of Drs. Hayden and Orr, so clearly brought before us, will undoubtedly be a great help in the handling of these cases. Yet we should not overlook that the source of the danger in this condition is the fluid in the distended intestine above the obstruction, which contains such poisonous products of protein decomposition as the amino-acids and histamin. Experimentally, when we make an isolated loop of intestine, and the food current in the intestines is restored to normal by an enterostomy, the loop becomes distended with liquid containing these chemical poisons which kill the animal. If this loop is removed a few hours before the animal would die, the animal recovers and is perfectly well afterward. This is the experimental proof of the point I want to bring out. When we are operating in a case of intestinal obstruction, if we do an enterostomy and allow this toxic fluid from the upper loop to run down into the lower loop, the chemical poisons contained in this fluid are absorbed rapidly and danger to the patient is increased. If while we are getting ready to do the enterostomy we insert a rubber tube into the distended loop and allow this toxic fluid to drain away, our mortality will be naturally reduced.

Dr. J. F. Grattan, New York: In consideration of the question of poor risks, it occurred to me a moment ago that absolutely no consideration is ordinarily taken of the physical condition of the patient before operation. It is usually considered that the physical condition of the person operated on is perfect. I have seen some instances in our hospitals of men going into the operating room with a poor surgical risk in poor physical condition themselves. I have seen assistants driven to excessive work the day and even the night before being brought into the operating room and expected to do good work. The question of the physical condition of the nurse and the operative personnel has also occurred to me. A nurse is kept on her feet in the operating room for six or eight hours at a time with little or no relief because of the supposed efficiency of such a nurse. The question of a twelve hour shift for nurses in New York in particular has occurred to me in comparison with the fact that our police department works in shifts of eight hours. If it is considered that the police, who are generally able-bodied men, are not capable of doing good work for more than an eight hour period, why should we assume that our nurses are capable of doing good work for twelve hours?

SPINAL DRAINAGE

VALUE IN THE TREATMENT OF EARLY POLIOMYELITIS*

J. C. MONTGOMERY, M.D.
AND
W. C. C. COLE, M.D.
DETROIT

The conception of poliomyelitis as a systemic infection is rapidly becoming established. The accumulation of clinical experience forces us to view infantile paralysis as a too frequent complication of an acute infectious disease which we are, as yet, poorly prepared to recognize or control. It was our privilege to observe, during the summer and autumn of 1924, twenty-six cases of poliomyelitis, twenty of them before the complicating paralysis had occurred. It is our purpose to describe briefly: (1) the clinical findings that we found most helpful in diagnosis, and (2) the apparent effect on symptoms and outcome of early subarachnoid drainage.

IMPORTANCE OF EARLY RECOGNITION

Until relatively recent years, the diagnosis of poliomyelitis rested entirely on the occurrence of the paralytic accident, and even now recognition of the disease is too frequently dependent on this complication. This is well illustrated by the statistics of the Detroit epidemic, during which 300 cases were reported with thirty-one deaths and with 264 paralyses. Thus, in an epidemic of these proportions only thirty-six cases were reported in which the patient did not become paralyzed. Clinical and experimental studies have taught us that the paralysis is preceded by a stage of central nervous system invasion which, in turn, follows a period of systemic infection. At the present time our ability to recognize the disease is confined solely to that group of cases which progress to the meningeal stage. We have no means of identifying as poliomyelitis those cases of systemic infection which do not progress. We have observed, however, the occurrence of many cases of acute illness, consisting of fever, mild pharyngeal reddening, vomiting and prostration. We have observed that some of these go on to definite evidence of meningeal invasion, but we have observed that in the majority the patients recover without further incident. The stage of systemic infection is, in all probability, represented by these symptoms, but we have been unable to distinguish them from those occurring with upper respiratory infections at all seasons of the year. Nevertheless, the unusual frequency of this train of symptoms, during the period of the epidemic, leads us to believe that many of them at least have entertained the true etiologic agent of poliomyelitis.

In the present study we have included only those cases which have shown definite neurologic or serologic evidence, or both, of meningeal invasion with a symptomatology and course compatible with poliomyelitis.

Future progress in our knowledge of the disease must come with the development of means of recognition of the stage of systemic infection.

PRECIPITIN TESTS

Apropos of this, the work of Rosenow[1] with the precipitin test obtained from nasal washings or swabbings with a specific antistreptococcic serum is of great interest. Although Rosenow has been unable up to the present time to produce conclusive evidence of the etiologic significance of the pleomorphic streptococcus, he has brought forward convincing evidence of its frequent association with the disease. He found the precipitin test positive not only in all acute cases of poliomyelitis, but also in 59 per cent. of normal persons tested within the epidemic zone as compared to 5.5 per cent. tested outside the epidemic zone.

Precipitin tests[2] were performed on five of our patients during the acute stage and found to be positive in each instance. They were also performed on eight of our patients after the acute stage and found to be positive in five instances, the three negative tests being found on the thirty-fourth, forty-fourth and fifty-fifth days, respectively. Precipitin tests were also performed on two patients showing signs and symptoms compatible with the period of general invasion, but who did not progress to any signs whatever of meningeal irritation; these were positive in both instances. Tests were also performed on three persons who had recently been in contact with acute cases, and these were found to be positive in each instance. Precipitin tests have been performed during the past month on seven of these patients who showed positive reactions during the epidemic, and they were found negative in all cases.

CLINICAL FINDINGS

Table 1 summarizes the symptoms and clinical findings. The majority of patients were boys, there being seventeen as compared with nine girls. The average age was $4\frac{3}{5}$ years. Vomiting was noted as the predominating initial symptom. Fever was the symptom complained of in thirteen cases. Headache was noted relatively rarely, as is to be expected from the early age of many of the patients, although at some time during the course of the disease it was present in 70 per cent. Pain was noted in only 54 percent., this again being low because of the age factor. Fever occurred in every instance, and vomiting was noted in 60 per cent. of the cases. Some redness or injection of the tonsils or pharynx was noted in practically every instance and persisted from one to two weeks after the onset of the illness. This was a matter of varying intensity; in some cases there was only a mild redness and in others a severe angina, the hyperemic area extending up into the nasopharynx, where a grayish white exudate was almost invariably seen. Hyperesthesia was noted in every instance, although it too varied considerably in its intensity. Irritability was observed in about one half the cases, although it was somewhat more constantly present in the early ones.

Of the clinical signs, aside from hyperesthesia and pharyngitis, those most constantly present were neck rigidity and resistance to anterior flexion of the spine, these signs being found in 92 per cent of all cases, or in all but two. It is indicative of the reliance which was placed on these findings that in these two instances the diagnosis was missed, lumbar puncture not being performed until the illness was several days advanced. Kernig's sign was present almost as frequently, being found in 88 per cent., or in all but three cases. The reflexes, in our experience, were most unproductive of information in early cases. They were found normal, exaggerated, sluggish and absent. The most that could be learned from them was that only in rare instances were they normal, and in one or two instances a difference between the two sides was of some help in arriving at a diagnosis. Rash has seldom been described as a clinical finding in poliomyelitis. In two of our cases erythema of the face and neck was noted, and in one instance a definite punctate scarlatiniform eruption was present over the chest and back. This rash was so suggestive of scarlet fever that such a diagnosis was held probable, particularly in view of the severe angina that was present, and the absence of meningeal irritation. It was only when paralysis occurred that the true nature of the illness was recognized.

---

* Read before the Section on Diseases of Children at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

* Because of lack of space, this article is abbreviated in The Journal by the omission of twenty-one case reports. The complete article appears in the Transactions of the Section and in the authors' reprints.

[1] Rosenow, E. C.: A Specific Precipitin Reaction in Epidemic Poliomyelitis, J. A. M. A. **84**: 429 (Feb. 7) 1925.

[2] Many of these precipitin tests were performed by Dr. Rosenow himself and many others under his supervision.

rately measuring the amount of pressure. While the pressure apparently varied in its intensity, nevertheless it was definitely increased in every instance except two, and these were beyond the acute stage. Similarly, the amount of fluid was increased in every instance except one. The degree of pleocytosis varied from 10 to 800. Here it is worth noting that in some instances when puncture was performed in the extremely early stage, practically no increase was detectable. Particular attention should be called to Case 2, in which puncture was first performed on the first day of illness, there being a marked increased pressure, but only 10 cells per cubic millimeter. The patient made practically uneventful progress for eight days, when, because of the finding of a slight Kernig's sign, puncture was repeated and a pleocytosis of 150 was found. It may be stated that it was a frequent experience that the cell count was higher on the second, third and fourth days of meningeal invasion than on the first day, even in the face of definite improvement symptomatically. Indeed, this led to the conclusion that in those instances in which an extremely large amount of spinal fluid under great pressure is found, a cell count of 10 or 15 should be regarded, in a child at least, as a definite increase. It seems logical to assume that this low count at the first puncture may partially be explained on the basis of dilution.

Table 1.—*Symptoms and Signs in Acute Poliomyelitis. All Cases*

												Rigidity				
Patient	Age	Day of First Visit	Complaint of Patient	Fever	Headache	Vomiting	Pain	Rash	Throat	Hyperesthesia	Sensorium	Neck	Spinal	Kernig	Reflexes	Paralysis
J. G.	7	1	Headache and backache	++	+	0	Back	0	Pharyngitis	+	Irritable	+	+	+	Normal	None
C. L.	7	1	Vomiting	+	±	+	0	0	Pharyngitis	+	Normal	+	+	+	Normal early, reduced late	None
C. S.	6	4-1	Vomiting	+	+	+	0	0	Pharyngitis	+	Irritable	+	+	+	Exaggerated	None
W. C.	4	1	Vomiting	+	+	+++	0	0	Pharyngitis	+	Irritable	+	+	+	Exaggerated	None
B. K.	7	3-1	Vomiting	+	+	++	0	0	Pharyngitis	+	Irritable	+	+	+	K. J. absent	None
B. G.	4½	1	Vomiting and fever	++	±	+	0	0	Pharyngitis	+	Drowsy	+	+	+	Variable	None
F. C.	6	1	Fever and pain	+	0	0	Feet and legs	0	Pharyngitis	±	Drowsy	+	±	0	K. J. absent	None
B. O.	6	1	Fever	+	0	0	Arm	0	Pharyngitis	+	Normal	+	+	+	Normal	None
V. G.	3	1	Vomiting	+	±	+++	0	0	Pharyngitis	+	Irritable	++	+	+	K. J. absent	None
}J. L.	7½	4-1	Fever	++	+	0	0	0	Pharyngitis	++	Normal	+	+	+	Exaggerated	None
}M. L.	5	4-1	Fever	++	+	0	Legs	0	Pharyngitis	++	Drowsy	++	+	+	Exaggerated	None
H. H.	4	4-1	Headache and pain	+	+	+	Legs	0	Pharyngitis	+	Irritable	+	±	+	Sluggish K. J.	None
O L.	3	2	Fever and backache	+	?	0	Back	0	Pharyngitis	+	Irritable	++	++	+	Exaggerated	None
R. R.	5	5-2	Fever and vomiting	+	+	+	0	0	Pharyngitis	+	Irritable	+	+	+	K. J. absent	Temporary of palate
H. M.	1	4-2	Fever	+	?	0	0	0	Tonsillitis	?	Irritable	0	0	0	K. J. absent	Permanent of left peroneal
N. P.	4	2	Fever	+	?	+	Legs	Scarlatiniform	Severe angina	+	Irritable	0	0	0	Normal during 1st 5 days	Permanent of left peroneal and quadriceps
R. D.	3	3	Vomiting and headache	+	+	+++	0	0	Pharyngitis and penumonia	+	Apathetic	+	+	+	K. J. absent	None
C. D.	1½	3	Vomiting	+	0	+	0	0	Pharyngitis	+	Drowsy	+	+	+	K. J. absent	Permanent of right sternomastoid and facial
J. K.	7	7-3	Backache	+	++	++	Back, arms and legs	0	Pharyngitis	++	Drowsy	++	+	++	Exaggerated	None
S. H.	4	8-4	Fever	++	+	++	Legs	0	Pharyngitis	+	Irritable	+	+	+	Normal	None
J. Mc.	2½	4	Fever and headache	+	++	0	Generalized	Erythema of face and neck	Pharyngitis	++	Irritable	++	++	++	Variable	Slight permanent of both peroneals
D. J.	3½	7	Apathy and pain	+	?	0	Legs	0	Pharyngitis	++	Drowsy	+	+	+	K. J. absent	Temporary of left peroneal
E. N.	2	7	Fever and sore throat	+	+	+	0	0	Pharyngitis	++	Drowsy	+	+	+	K. J. absent	Permanent of quadriceps
M R	2	8	Fever	+	?	++	Legs	0	0	+	Irritable	++	++	+	K. J. absent	Permanent of quadriceps
P. C.	4	9	Weakness of legs	+	++	0	Arms and legs	Erythema of face	Pharyngitis	++	Drowsy	+	+	+	K. J. absent Left arm absent	Temporary of left facial Permanent of quadriceps
L. Mc.	10	14	Pain in legs	+	+	+	Right leg and back	0	0	++	Normal	++	++	++	K. J. absent	Slight permanent of quadriceps
9 girls 17 boys	4.6 yrs.		Fever....12 Vomiting.9 Headache.4 Pain......7	100%	70%	60%	54%	11%	92%	100%		92%	92%	88%		

It will be noted under the heading "Day of First Visit" that in nine cases two days are given. It was in these instances that a definite dromedary type of onset was noted, there being a definite history of a preceding illness from two to four days previously, consisting usually of fever, coryza and occasionally sore throat and vomiting. This was followed by the apparent complete recovery of the patient, until the onset of meningeal signs, which is indicated by the second day mentioned. In Table 3, which shows the relation of spinal drainage to paralysis in our cases, we have indicated the day of first visit only in relation to the onset of meningeal signs.

SPINAL FLUID FINDINGS

It is to be noted that estimates of spinal fluid pressure were based on experience regarding rate of flow. These spinal punctures were almost without exception performed in the homes and without facilities for accu-

TIME OF LUMBAR PUNCTURE AND OUTCOME

We have found it to be the opinion of many clinicians that lumbar puncture in early poliomyelitis is a most valuable procedure. Nevertheless, we have found it regarded as a measure to be avoided by many others. While many references [3] to this procedure are to be found in the literature, there are very few observations on early poliomyelitis which have been so analyzed as to emphasize the possible benefit to be derived from subarachnoid drainage. Indeed, there is a distinct dearth of observations and descriptions of poliomyelitis in the acute stage. By far the majority of clinical papers dealing with this disease have originated from large institutions and clinics where, unfortunately, only the relatively late cases are seen; it should be the special responsibility of the pediatrician and general practitioner, who are working in the first line of trenches, to recognize and bring under careful observation the early stages of poliomyelitis.

Table 2.—*Spinal Fluid Findings*

Name of Patient	Day of First Lumbar Puncture	No. of Drainages	Pressure	Amount	Globulin	Cells	Sugar
J. G.	1	2	+++	+	+	15	.....
C. L.	1	2	++	+	0 to +	10-150	.....
C. S.	1	3	++	+	+	70-460	.....
W. C.	1	4	++	++	+	60- 80	.....
B. K.	1	3	++	++	+	25	.....
B. G.	2	4	++	++	0	10	.....
F. C.	2	..	+	+	+	40	.....
B. O.	3	4	++	+	+	65-170	.....
V. G.	2	2	++++	+++	0	10- 15	.....
{J. L.	2	4	++++	+++	+	60-510	.....
}M. L.	2	3	+++	+++	+	80-140	.....
H. H.	2	3	+++	++	+	115	0.67
O. L.	2	4	+++	+	++	60-800	.....
R. R.	2	4	++	++	+	30-300	.....
H. M.	5	4	++	++	+	240	.....
N. P.	5	4	++	++	+	160	.....
R. D.	3	6	+	+	+	385-440	0.967
C. D.	4	..	++	++	+	250	.....
J. K.	3	4	++++	++	+	150	0.714
S. H.	5	1	+++	++	+	230	.....
J. Mc.	4	6	+++	++	—	110	0.744
D. J.	10	3	++	++	..	50	.....
E. N.	7	4	++	++	+	16	0.722
M. R.	9	1	Normal or slight +	+	+	30	0.741
P. C.	9	5	++	++	..	35-110	.....
L. Mc.	14	3	*Normal*	*Normal*	++++	......	.....

It was our practice, as soon as a diagnosis of poliomyelitis was suspected, to perform a lumbar puncture. If this showed definite increase in pressure, with or without a pleocytosis, it was repeated at twelve or twenty-four hour intervals until the pressure had definitely subsided. This usually occurred in about three or four punctures, and it was our usual experience that after pressure had once subsided, it did not recur.

In Table 3 we have arranged the cases according to the promptness with which lumbar puncture was performed. It will be seen that in sixteen cases (those bracketed under Group 1) lumbar puncture was performed not later than the third day, and in six instances (bracketed under Group 2) lumbar puncture was first performed after the third day. The other four cases were all seen so late that it was felt best to exclude them from this analysis. The last patient, D. J., was also seen rather late; nevertheless, the type of onset was of a gradual nature, and it is probable that she was seen much earlier in the disease as reckoned from the onset of meningeal symptoms than is here indicated. This is borne out by the fact that she was not paralyzed until the day after she was first seen. It should be noted that this was the first case that came under our observation, and because of the fact that numerous pus cells were found in the urine, the tentative diagnosis was pyelitis with meningismus, and the true diagnosis was not appreciated until paralysis had occurred. It will be noted that in the cases included in Group 1, paralysis was noted in only one instance, and this consisted only of a slight weakness of the palate which was purely temporary. In the cases included in Group 2, paralysis occurred in all but one instance and was permanent in four. In the fifth some weakness is still present, with the eventual outcome still a matter of uncertainty. It is apparent that many cases such as those noted under Group 1 may have occurred and gone on to complete recovery with-.

Table 3.—*Relation of Spinal Drainage to Paralysis in Poliomyelitis*

	Patient	Age in Years	Day of First Visit	Day of First Drainage	Number of Drainages	Maximum Pleocytosis	*Paralysis* Day	*Paralysis* Location	*Paralysis* Outcome	Rosenow Serum
Group 1	J. G.	7	1	1	2	15	0	....	....	15 c.c. concentrated
	C. L.	7	1	1	2	150	0	....	....	....
	C. S.	6	1	1	3	460	0	....	....	....
	W. C.	4	1	1	4	80	0	....	....	....
	B. K.	7	1	1	3	25	0	....	....	....
	B. G.	4½	1	2	4	10	0	....	....	....
	F. C.	6	1	2	2	40	0	....	....	....
	V. G.	1½	1	2	2	15	0	....	....	....
	{J. L.	7½	1	2	4	510	0	....	....	....
	}M. L.	5	1	2	3	140	0	....	....	....
	H. H.	4	1	2	3	115	0	....	....	....
	O. L.	3	2	2	4	800	0	....	....	....
	R. R.	5	2	2	4	300	5	Palate	Recovery	....
	R. D.	3	3	3	2	440	0	....	....	13 c.c. concentrated, 27 c c. unconcentrated
	J. K.	7	3	3	4	150	0	....	....	....
	B. O.	6	1	3	4	170	0	....	....	....
Group 2	J. McN.	2½	4	4	6	110	4	Peroneal	Slight permanent	....
	C. D.	1½	4	4	4	250	4	Right sternomastoid and right facial	Permanent	....
	S. H.	4	4	5	1	230	0	....	....	....
	N. P.	4	2	5	4	160	5	Left peroneal and quadriceps	Permanent	....
	H. M.	1	1	5	4	240	3	Left peroneal	Permanent	....
	D. J.	3½	7	10	3	50	8	Left peroneal	(Recovery ?)	....
	Average Group 1.................................					213.7				
	Average Group 2.................................					173.3				
	E. N.	2	7	7	4	16	4	Quadriceps	Permanent	30 c.c. unconcentrated
	P. C.	4	9	9	5	110	6-7	Left facial, all quadriceps	Recovery	....
	M. R.	2	8	9	1	30	4-5	Quadriceps	Permanent	....
	L. McD.	10	14	14	3	Bloody	6	Right and left quadriceps	Improved	....

---

[3] Meninger, K. A.: The Treatment of *Poliomyelitis*, J. Kansas M. Soc. **23**: 278 (Oct.) 1923. A Monograph on the Epidemic of Poliomyelitis in New York City in *1916, New York*, Department of Health, 1917, p. 254. Hauser, G. H.: Diagnostic and Therapeutic Value of Lumbar Puncture in Lethargic Encephalitis, New Orleans M. & S. J. **74**: 331 (Nov.) 1921.

out recognition, and it is entirely conceivable that they would have done so without lumbar puncture; nevertheless, in the three cases in which we failed to make an early diagnosis (N. P., H. M. and D. J.), and in which lumbar puncture was not performed until late in the illness, paralysis did occur. It is of interest to note that practically the same average maximum cell count obtained in the two groups, in the first group the average being 213.7 and in the second group 173.3.

Entirely aside from the possible relationship of the spinal drainage to outcome, marked improvement in symptoms was invariably noted, there being without exception a cessation of vomiting and a diminution of hyperesthesia, neck rigidity and spinal rigidity. Even in the four late cases noted at the bottom of Table 3, in which paralysis had occurred, a marked improvement in the symptoms was noted at once after lumbar puncture.

CONCLUSIONS

The data that we have gathered strongly suggest a possible beneficial effect on the outcome of the disease to be derived from early and repeated subarachnoid drainage. We are making this report in the hope of stimulating further observations on a larger scale. The evidence of beneficial effect is sufficiently suggestive to necessitate the controlling of this factor in any studies of clinical poliomyelitis that attempt to evaluate a therapeutic procedure of which lumbar puncture is a part.

REPORT OF CASES

Case 2.—C. L., a boy, aged 7 years, seen, Sept. 4, 1924, had become ill that day with fever and vomiting. His past history was essentially negative. Examination showed slight redness of the pharynx, rigidity of the neck and spine and a slightly positive Kernig's sign. Lumbar puncture was performed immediately and showed a marked increase in pressure, with 10 cells per cubic millimeter and a negative globulin test. The following day the patient seemed completely recovered. The rigidity had disappeared, and it was felt that the case was not one of poliomyelitis. However, it was felt wise to visit him again; September 8, he was seen by us and again entirely normal findings were recorded. September 10, he was found to be entirely normal except for a slight rigidity of the neck. However, Kernig's sign was negative. There was no rigidity of the spine and no fever. September 12, however, the rigidity of the neck was quite marked, and there was a slightly positive Kernig's sign. Lumbar puncture was performed on this day showing again an increase in pressure, but to a much less degree than previously, with a large volume and 150 cells per cubic millimeter and a positive globulin test. Following this spinal drainage the signs of meningeal irritation again entirely disappeared, and the patient went on to uneventful recovery without paralysis.

Case 3.—R. R., a boy, aged 5 years, seen, Aug. 1, 1924, had a fever and had vomited July 26, according to his mother's statement. The illness was diagnosed by the family physician as a gastro-intestinal upset. The patient was apparently well the next day and remained so until July 31, when he again began to vomit and developed fever. When seen by us the following day he showed marked irritability, slight rigidity of the neck and spine, a slightly positive Kernig's sign, absent knee kicks and a moderate pharyngeal injection. Lumbar puncture was performed, showing a large volume of fluid under greatly increased pressure, with a cell count of 30 per cubic millimeter and a positive globulin test. The white blood count showed 8,800 leukocytes per cubic millimeter, with 65 per cent. polymorphonuclears, 5 per cent. mononuclears and transitionals and 30 per cent. lymphocytes. Lumbar puncture was repeated, August 2, showing again a definitely increased pressure and a large volume with 130 cells per cubic millimeter. August 3, lumbar puncture showed an increase of pressure, but less marked than the previous day, with 110 cells per cubic millimeter. August 4, the spinal fluid was under practically normal pressure with 300 cells per cubic millimeter. It was noted at this time that the patient had a slightly nasal voice. Inspection of the palate showed that it moved well, but the nasal voice persisted for about two weeks. The patient's hyperesthesia and irritability cleared after the last lumbar puncture, and he went on to an uneventful recovery without paralysis.

Case 5.—C. S., a boy, aged 6 years, seen, Sept. 11, 1924, whose past history was essentially negative, had had fever four days before and was slightly indisposed for one evening, according to his mother. The next day he was normal, however, and remained so until the day of our visit, when he began to vomit, complained of headache and developed fever. Examination showed a slight rigidity of the neck and a slightly positive Kernig's sign. The knee kicks were slightly exaggerated, and there was a moderate redness of the pharynx. Otherwise the physical findings were negative. Lumbar puncture was performed, and a large amount of fluid under great pressure was obtained, with 70 cells per cubic millimeter and a positive globulin test. Lumbar puncture was repeated on the following day. Again spinal fluid was obtained under increased pressure, although to a less degree than previously, and again 70 cells per cubic millimeter were found. Following this the patient showed a marked improvement in symptoms, there being less rigidity and no vomiting. Spinal puncture was done again, September 15, at which time the fluid was found under practically normal pressure, with 460 cells per cubic millimeter. Fever continued until this time, but following this puncture the patient's temperature dropped to normal and remained so. Rigidity of the neck, while clearly diminished, was present to a slight degree until September 20, when physical examination showed perfectly normal findings except for slightly sluggish knee kicks, which, however, were found to be normal again, September 22. The patient made an uneventful recovery without paralysis.

Case 17.—D. J., a girl, aged 3½ years, seen, July 28, 1924, had complained of fever and irritability one week before. Fever had been present at intervals since, and recently the patient had become drowsy and was sleeping most of the time. Hyperesthesia had been marked. She had been unable to walk for the past two days. Examination showed slight rigidity of the neck, a positive Kernig's sign and the throat very slightly inflamed. The knee jerks were absent. July 29, the condition was practically the same. There was no fever. Examination of the urine showed large quantities of pus. A diagnosis of pyelitis was made. July 31, the patient complained of increased pain in the lower extremities and was unable to stand. The reflexes were absent, and the hyperesthesia was marked. Spinal puncture was performed which showed a marked increase of spinal fluid with a cell count of 50 and a positive globulin. August 2, there was very little change in the patient's condition. The spinal puncture was repeated, still under marked pressure. The next day the patient was greatly improved. The reflexes were more active and the hyperesthesia was practically gone. August 6, the patient was improving rapidly. Movements had returned to all parts, but there was a weakness of the left leg. August 9, the patient had returned to normal health and was able to walk in a normal manner, but had a slight dragging of the left foot and a slight atrophy of the left calf muscles. She was referred to an orthopedist and several months later still showed a slight atrophy and weakness of the left peroneal group. This was the first case observed, and the diagnosis was not made promptly because we were not thinking of poliomyelitis and because of the associated pyelitis.

Case 26.—D. L., a boy, aged 3 years, seen, Sept. 10, 1924, became ill the day previous, was irritable, awoke frequently during the night and seemed feverish. The past history was essentially negative. Examination showed marked rigidity of the neck and spine, exaggerated reflexes and a reddening of the pharynx. Lumbar puncture was performed immediately, showing a large quantity of fluid under greatly increased pressure, with 360 cells per cubic millimeter and a positive globulin test. Puncture was repeated the following day, and a large quantity of fluid was again found under increased pressure, but no cell count was made. September 12, however, puncture was again performed, and a large quantity of fluid was obtained under increased pressure. The fluid was opalescent, and 800 cells per cubic millimeter were found. On the following day the fluid was quite clear with 60 cells per cubic millimeter and obtained under normal pressure. Following the lumbar punctures the patient's signs and symptoms entirely disappeared, and he went on to an uneventful recovery without paralysis.

2970 West Grand Boulevard.

TREATMENT OF GENERAL SEPTICEMIA BY GENTIAN VIOLET AND MERCUROCHROME-220 SOLUBLE

EXPERIMENTAL RESULTS AND CLINICAL OBSERVATIONS *

W. D. GATCH, M.D.; H. M. TRUSLER, M.D.
AND
J. E. OWEN, M.D.
INDIANAPOLIS

General septicemia has an extremely variable clinical course which frequently ends in spontaneous cure. This makes it easy to overestimate the value of any method of treatment. To guard against this danger in the present study, we shall begin by enumerating certain facts about the natural course of the disease.

1. The entry of bacteria into the blood stream is a relatively frequent occurrence and in most cases is not attended by consequences of a serious character, at least not so far as immediate danger to life is concerned.

Numerous clinical and experimental observations support the truth of this proposition. Ritchey[1] obtained positive blood cultures from patients with chills following instrumentation of the urinary tract. It is a matter of common knowledge how frequently positive blood cultures are obtained from patients with various ailments, provided enough blood is drawn.

2. A patient with general septicemia will nearly always recover, even if very sick, provided his focus of infection is removed by drainage or amputation and provided he is not suffering from some debilitating disease.

Bloodgood has written at length on this subject. The senior author has reported a series of thirteen cases of general septicemia, all arising from infections of the extremities and all with the diagnosis confirmed by blood culture. Amputation and ordinary nursing care were the sole treatments used. There was but one death in the series, and this was of a patient with diabetes. Insulin would have prevented this sole fatality. The healthy human body can cope successfully with a severe bacteremia, provided fresh doses of bacteria are not constantly added to the blood stream.

3. A healthy patient, with a general septicemia from a focus of infection which cannot be removed by drainage or amputation, will frequently recover, provided he survives the first few days of the infection.

The clinical course of patients with postpartum sepsis furnishes the best proof of this proposition. We have observed rather a large number of these patients treated entirely by conservative methods. Though most of these women were very ill for weeks, some with pulmonary infarcts and some with inflammatory masses palpable through the abdominal wall, recovery was the rule. One patient, on admission to the hospital, had been sick for five weeks. She had been having from one to three violent chills daily. Her hemoglobin was under 20 per cent. She was in a stupor and had almost complete suppression of urine. She was given several large transfusions of blood, and made a complete recovery. The lesson to be drawn from this case, for those who are enthusiastic about any special treatment, is obvious. If the primary dose of bacteria is not overwhelming, nature may gradually wall off, isolate and destroy the focus of infection and sterilize the blood stream.

4. General septicemia is a terminal event in many cases of pneumonia and peritonitis. In such cases, the development of the blood stream infection is an indication that the fundamental infection is overwhelming. Under these conditions, it will obviously be impossible to sterilize the blood stream, and it is understandable that any treatment whatever is futile.

5. In case an infection is of long duration, the body acquires an immunity to the infecting organism, and the latter acquires an immunity to the defensive powers of the host. This is Welch's law of reciprocal immunity. It explains the remarkable chronicity of certain infections. These are the conditions that may be benefited by any therapy that excites a systemic reaction.

Bearing in mind the foregoing facts about the natural course of general septicemia, we can now consider, with the proper amount of scientific skepticism, the alleged curative effects of gentian violet and mercurochrome-220 soluble. The intravenous use of these drugs in infectious conditions has excited much scientific interest and enthusiasm. Such interest is entirely warranted. A review of the literature, however, discloses many conclusions that cannot be supported by known facts.

Strictly speaking, any agent known at the present time with the power to devitalize one form of protoplasm will, in sufficient concentration, devitalize others. Any drug, therefore, of greater bactericidal power will of necessity show some toxicity for tissue cells. Yet the phenomenon of selective toxicity, though ultimately quantitative, is in many instances so striking as to appear qualitative in its selection. This phenomenon is demonstrated in the selective toxicity of gentian violet for gram-positive bacteria.

Churchman,[2] in 1912, demonstrated that 90 per cent. of gram-positive organisms are unable to grow on mediums containing gentian violet, whereas gram-negative organisms grow luxuriantly on the same mediums. By animal inoculations of guinea-pigs and rabbits with *Staphylococcus aureus* previously exposed to the dye, he proved that these organisms are killed by a dilution of 1: 1,000,000 gentian violet. Staphylococci, of such virulence as to kill control animals in forty-eight hours, were rendered harmless by staining with the dye, two rabbits surviving enormous doses of these stained bacteria.

In marked contrast, gram-negative bacteria remain alive in dilutions of 1: 10,000, and retain their growth properties even though deeply stained. Later, Churchman[3] demonstrated strains of gram-negative bacilli to which the dye is toxic, and isolated from a pure culture of *B. coli* a "strain within a strain" to which the dye was bactericidal. At this time, he pointed out another important factor; namely, that a film of dead bacteria protects adjacent living organisms from the dye.

---

* From the Department of Surgical Pathology, Indiana University School of Medicine, the Eli Lilly Research Fellowship.

[1] Ritchey, J. O.: Unpublished work.

[2] Churchman, J. W.: The Selective Bactericidal Action of Gentian Violet, J. Exper. Med. **16**: 221-247 (Aug.) 1912.

[3] Churchman, J. W.: Further Studies on the Behavior of Bacteria Toward Gentian Violet, J. Exper. Med. **33**: 569-581 (May) 1921.

The essential fact remains that gram-negative organisms survive exposure to gentian violet and other triphenylmethane dyes in strengths far in excess of that required to kill gram-positive organisms. Furthermore, the comparative nontoxicity for tissue cells has been demonstrated by Russell[4] in that frog's endothelium will grow on mediums containing gentian violet in conconcentration of 1 : 20,000 and even 1 : 2,000, a strength more than sufficient to kill gram-positive organisms.

In 1913, Churchman[5] demonstrated further that gentian violet may be injected in large quantities into the blood stream of rabbits, the animals remaining alive and apparently uninjured with tissues stained blue. The blood of such an animal possesses an increased power to inhibit the growth of bacteria. This action, however, is demonstrable in the circulating blood for only a short time after the injection. At the end of one and three fourths hours, it has disappeared entirely. This disappearance of activity is not due to chemical reaction with the blood. The dye mixed with blood in vitro is unchanged in its bacteriostatic action after standing as long as one week. It would appear that the injected dye is physiologically removed from the blood stream in a short while. Churchman points out that concentrations of gentian violet too small to possess bactericidal power yet possess ability to inhibit bacterial growth. This he designates as "bacteriostatic action."

As a result of its selective bactericidal and bacteriostatic action, together with its nonirritating qualities, the dye has proved of great value as a local antiseptic. Infected joints,[6] empyema cavities,[7] open wounds[8] and many other suppurative conditions have thus been effectively treated by Churchman and numerous others. The bactericidal powers of gentian solutions are greatly enhanced by elevating the temperature[9] a few degrees. Concerning its intravenous use, however, Churchman,[10] in 1924 stated: "I have never been able to kill organisms circulating in the blood stream by intravascular injections of gentian violet. There is some evidence in the literature that it may at some time be possible to produce a sterilisans magna in this way, but certainly at the present time there is nothing to suggest that it is now possible to do for bacteria what quinine does for malaria."

Mercurochrome is a dye preparation of an entirely different type It is a powerful germicide for all types of bacteria, first evolved by Young[11] and his associates in 1919 Under the name of mercurochrome-220 soluble, it first came into prominence as a genitourinary antiseptic. In a dilution of 1 : 1,000 it kills *B. coli* and *Staphylococcus aureus* in urine in one minute. Its slight irritability to the tissues is demonstrated by the fact that the human bladder will tolerate a 1 per cent. solution for from one to three hours without harm. Also by the intravenous route, rabbits withstand safely an injection of 5 mg. per kilogram of body weight; dogs withstand 10 mg. per kilogram, the latter dose being fatal to the rabbit.

When normal rabbits are injected intravenously with safe doses the urine[12] exhibits an increased bacteriostatic action on *B. coli*. This action is greatest about two hours following injection.

Hill and Colston[13] further demonstrated that, when normal rabbits are injected intravenously with doses varying from 1 to 7.5 mg. per kilogram, the blood has an increased bacteriostatic action. Such blood inhibits the growth of *B. coli* to a much more marked degree than does the blood from uninjected rabbits. This action is greatest from fifteen to forty-five minutes after injection, rapidly disappearing thereafter.

In 1922, Piper[14] reported the favorable effect of mercurochrome intravenously in puerperal sepsis. In conjunction therewith, he reported animal experiments to the effect that a normal rabbit had been given repeated injections of 5 mg. per kilogram without apparent injury. A virulent strain of streptococcus caused the death of a control rabbit in thirty-six hours. Another rabbit receiving an intravenous inoculation from a subculture was comatose in twenty-four hours, the blood culture being positive. Following an intravenous injection of mercurochrome, 5 mg. per kilogram, the rabbit was improved, though the blood culture remained positive. Following a second injection of the same dose, all blood cultures were negative. The rabbit was reported cured but was killed shortly thereafter. Other rabbit experiments with the same culture of streptococcus failed because the organism had lost its virulence. It is a well known fact, experimentally, that the virulence of streptococcus for rabbits is very uncertain.

This review of the experimental data on mercurochrome and gentian violet discloses evidence that these drugs should have therapeutic value in blood stream infections. The laboratory results, however, are in no case sufficiently definite to explain the startling cures reported by clinical observers. It is for this reason that our experimental work is being reported at this time. By inducing staphylococcic septicemia in the rabbit, we have approximated the conditions in which the clinician undertakes the intravenous use of gentian violet and mercurochrome. Furthermore, because of its constant fatality in the rabbit, the treatment of this infection constitutes a crucial test of the drugs.

TOXICITY OF GENTIAN VIOLET

Though the toxicity of gentian violet and the safe dose for intravenous injection into rabbits were fairly well known, a short series of experiments was conducted in order to discover, if possible, the least toxic type of solution.

A. It was possible to prepare 1 : 1,000 solutions of gentian violet in 0.9 per cent. sodium chlorid, but the dye is not sufficiently soluble in physiologic sodium chlorid solution to permit solutions of greater concentration These solutions had the theoretical advantage of isotonicity, and results indicate that they are less toxic per milligram of the dye than solutions of other types. The salt, however, tends to cause a progressive crystallization of the dye and for that reason makes an undesirable solution.

---

[4] Russell, D G The Effect of Gentian Violet on Protozoa and on Tissues Growing in Vitro, with Especial Reference to the Nucleus, J Exper Med **20**: 545 553 (Dec) 1914

[5] Churchman J W, and Herz, L F · The Toxicity of Gentian Violet and Its Fate in the Animal Body, J Exper Med **18**: 579 583 (Nov) 1913

[6] Churchman, J W Treatment of Acute Infections of the Joint by Lavage and Direct Medication, J A M A **70**: 1047 1051 (April 13) 1918

[7] Waters, B H Pleural Infections Complicating Artificial Pneumothorax Treated with Gentian Violet, Am Rev Tuberc **4**: 875 (Feb) 1921

[8] Churchman, J W Selective Bacteriostasis in the Treatment of Infections with Gentian Violet, J A M A **74**: 145 148 (Jan 17) 1920.

[9] Churchman, J W The Effect of Slight Increase of Temperature on the Bactericidal Power of Gentian Violet, Bull Johns Hopkins Hosp. **33**: 227 229 (June) 1922

[10] Churchman, J W The Selective Bacteriostatic Action of Gentian Violet and Other Dyes, J of Urol **11**: 1 18 (Jan) 1924

[11] Young, H H, White, E C, and Swartz, E O A New Germicide for Use in the Genito-Urinary Tract Mercurochrome 220 Soluble, J A M A **73**: 1483 1491 (Nov 15) 1919

[12] Hill, J H, and Colston, J A C. A Note on the Bacteriostatic Action of Urine After the Intravenous Administration of Mercurochrome to Normal Rabbits, Bull Johns Hopkins Hosp **34**: 220 (July) 1923

[13] Hill, J H, and Colston, J A C A Note on the Effect of the Intravenous Administration of Mercurochrome on the Bacteriostatic Action of Blood, Bull Johns Hopkins Hosp **34**: 372 (Nov) 1923

[14] Piper, E B · The Treatment of Puerperal Sepsis by the Use of Mercurochrome Intravenously, with a Report of Animal Experimentation in the Chemical Disinfection of the Blood, Am. J. Obst. & Gynec. **4**: 532-543 (Nov) 1922.

B. Aqueous solutions are the most commonly used, 1:500 and 1:200 concentrations. Our experiments would indicate, however, that intravenous injection in this form is more toxic than in the more dilute solution in physiologic sodium chlorid solution.

C. Isotonic solutions of gentian violet, 1:500, in 4 per cent. glucose seemed to possess a slight advantage over aqueous solutions of the same concentration.

Gentian Violet, 1:1,000, in Physiologic Sodium Chlorid Solution

Three rabbits receiving 5 mg. per kilogram lived.
One rabbit receiving 10 mg. per kilogram lived.
One rabbit receiving 15 mg. per kilogram lived.
One rabbit receiving four injections, each 5 mg. per kilogram, at seventy-two hour intervals, lived.

Gentian Violet, 1:500 Aqueous Solution

One rabbit receiving 5 mg. per kilogram lived.
One rabbit receiving 15 mg. per kilogram died in twelve hours.
One rabbit receiving 20 mg. per kilogram died in five hours.
One rabbit receiving 50 mg. per kilogram died at once.

Gentian Violet, 1:500, in 4 Per Cent. Glucose Solution

One rabbit receiving 5 mg. per kilogram lived.
One rabbit receiving 10 mg. per kilogram died in four days.
One rabbit receiving 15 mg. per kilogram died in two days.
One rabbit receiving 20 mg. per kilogram died in nine days.

From the tabulated results it appears that all rabbits survived injections of 5 mg. per kilogram of body weight. In one case, 5 mg. injections repeated four times at seventy-two hour intervals caused a loss of 300 gm. weight, but the animal appeared normal. A solution of the dye, 1:1,000, in physiologic sodium chlorid solution appears less toxic; two rabbits surviving injections of 10 and 15 mg. per kilogram, whereas other solutions were fatal in that concentration.

Two dogs under light ether anesthesia, with respiration and blood pressure recording on a drum, were given large injections of the dye. One dog, receiving a slow injection of 50 mg. per kilogram, died in forty-five minutes, of respiratory paralysis. The blood pressure rose during the injection and remained high till respirations had ceased. Caffein had no effect on the respiratory failure. The other dog, given two injections of 10 mg. per kilogram at half hour intervals, died in the same manner at the end of two hours. All the tissues were stained a deep blue, the gray matter of the brain showing a marked discoloration. No discoloration of the spinal fluid or urine was demonstrated. In the case of a rabbit dying five hours after a large injection, the urine, however, was a decided blue.

Necropsy on a rabbit that died nine days after an injection of 20 mg. per kilogram showed: (1) marked degenerative changes in the kidneys; (2) atrophy of the liver and spleen with deep pigmentation; (3) fibrosis of heart muscle, and (4) chronic pulmonary congestion.

It appears that the mechanism of death in a rapidly fatal dose of gentian violet is respiratory paralysis. The pathologic process leading to a delayed death from the drug is that of toxic degeneration of parenchymatous organs.

EXPERIMENTS IN SEPTICEMIA

In these experiments with septicemia in the rabbit, *Staphylococcus aureus* was chosen because of its well known constant virulence to the animal. A pure culture of *Staphylococcus aureus* was obtained from a carbuncle, and subcultures of this organism were used throughout our first series, its virulence showing no marked attenuation after many days in the laboratory.

Cultures were grown on routine agar slants and were suspended in salt solution for injection. All inoculations were made into a marginal ear vein. All injections of the dye were made in a similar manner.

Rabbits 1 and 2 were given similar injections of *Staphylococcus aureus.*

Rabbit 1 died in fifty hours.
1. This rabbit, an untreated control, became rapidly ill.
2. Blood cultures were strongly positive, showing a hemolytic staphylococcus.
3. The rabbit died in fifty hours. The necropsy showed nothing but the acute congestion of general septicemia.

Rabbit 2 died in 120 hours.
1. Twenty-four hours following inoculation, the blood culture was positive.
2. The rabbit was then given gentian violet intravenously, 5 mg. per kilogram (1:1,000 solution in physiologic sodium chlorid solution).
3. The rabbit improved. Blood culture taken six hours later was negative.
4. Forty-eight hours later, the blood culture was again positive. The rabbit was given a second injection of gentian violet, 5 mg. per kilogram.
5. The second dose caused little or no improvement. The rabbit died five days after the inoculation.
6. Necropsy showed acute inflammation of parenchymatous organs and small collections of pus in the joints.

Rabbits 3 and 4 received the same dose of staphylococcus.

Rabbit 3 died in thirty-six hours.
1. This rabbit was untreated as a control.
2. The blood culture was positive in twenty-four hours, and the rabbit died in thirty-six hours.

Rabbit 4 died in ninety hours.
1. Eighteen hours following inoculation, the blood culture was positive.
2. The rabbit was then given gentian violet, 5 mg. per kilogram (1:1,000 solution in physiologic sodium chlorid solution).
3. There was temporary improvement, but the animal died in ninety hours.

Rabbits 5, 6 and 7 received the same dose of an attenuated culture of staphylococcus.

Rabbit 5 died in forty-three hours.
1. The blood culture was positive, but the animal was not seriously ill.
2. Twenty hours after inoculation, the rabbit received gentian violet, 10 mg. per kilogram (1:500 solution in 4 per cent. glucose solution).
3. The animal died forty-three hours from the time of inoculation. Necropsy showed acute congestion of the lungs and hemorrhages in the kidneys. In this case it is evident that death was precipitated by the treatment.

Rabbit 6 died in 192 hours.
1. Twelve hours following inoculation, the rabbit received gentian violet, 5 mg. per kilogram (1:1,000 solution in physiologic sodium chlorid solution).
2. Forty-eight hours later, the rabbit received another injection of gentian violet, 5 mg. per kilogram (1:500 aqueous solution).
3. The rabbit lived for eight days, during which time it developed a marked arthritis. Necropsy showed large abscesses and collections of pus in the joints.

Rabbit 7 died in 312 hours.
1. This animal was untreated as a control for Rabbits 5 and 6 for a period of ten days. Though it outlived the two treated rabbits, it developed the characteristic arthritis. On the tenth day it was comatose and very near death.

2. The rabbit was then given a series of five injections of gentian violet, 3 mg. per kilogram (1:1,000 solution in physiologic sodium chlorid solution).
3. The rabbit showed marked temporary improvement, but died at the end of thirteen days from the time of inoculation.

Rabbits 8 and 9 received the same dose of staphylococcus.

Rabbit 8 died in 240 hours.
1. This animal, an untreated control, lived ten days.
2. Necropsy showed ulcerative endocarditis, purulent pneumonia, abscesses in the kidneys, purulent arthritis, and abscesses in the muscles.

Rabbit 9 died in 120 hours.
1. At the end of twenty-six hours this rabbit received gentian violet, 5 mg. per kilogram (1:500 solution in 4 per cent. glucose).
2. The animal died in five days with pyemia and purulent arthritis, whereas the untreated control lived ten days.

Rabbits 10, 11, 12 and 13 received the same dose of staphylococcus from a culture of great virulence.

Rabbit 10 died in twenty-two hours.
1. This animal, untreated as a control, died twenty-two hours following inoculation.

Rabbit 11 died in twelve hours.
1. Two hours after inoculation, this rabbit was given gentian violet, 10 mg. per kilogram (1:500 aqueous solution).
2. The animal died in twelve hours.

Rabbit 12 died in eighty hours.
1. Twelve hours after inoculation, the rabbit received gentian violet, 3 mg. per kilogram, and at short intervals five more doses of the same size.
2. The animal was improved temporarily after each injection, but died after eighty hours.

Rabbit 13 died in thirty hours.
1. Twenty-four hours after inoculation, the rabbit was comatose. It received gentian violet, 3 mg. per kilogram and two hours later another injection of the same size.
2. The rabbit died in thirty hours from the time of inoculation.

Rabbits 14, 15, 16 and 17 received the same dose of staphylococcus.

Rabbit 14 died in eighteen hours.
1. This rabbit was untreated as a control, and died in eighteen hours from the time of inoculation.

Rabbit 15 died in forty-five hours.
1. Fifteen minutes from the time of inoculation, this rabbit received gentian violet, 7.5 mg. per kilogram (1:1,000 solution in physiologic sodium chlorid solution), and twenty-four hours later another injection of the same size.
2. The rabbit died in forty-five hours from the time of inoculation.

Rabbit 16 died in forty hours.
1. Three hours after inoculation this animal received gentian violet, 5 mg. per kilogram (1:500 aqueous solution), and twenty-four hours later a second injection of the same size.
2. The animal died in forty hours from the time of inoculation.

Rabbit 17 died in ninety-six hours.
1. One hour after inoculation the rabbit received gentian violet, 5 mg. per kilogram (1:1,000 solution in physiologic sodium chlorid solution).
2. The same dose was repeated three times at twenty-four hour intervals.
3. With each injection there was temporary improvement, but the rabbit died in ninety-six hours from the time of inoculation.

In this series of seventeen rabbits, staphylococcus septicemia induced by inoculation into the ear vein was fatal in all cases. There is a noticeable variation in the rapidity with which individual animals succumbed to the infection. This may be attributed to differences in the virulence of the infection, to variation in individual susceptibility, and to the effect of treatment. In most cases, gentian violet used intravenously brought about a temporary improvement, and in those instances in which a blood culture was taken a short time after injection, it was found to be temporarily negative. In one case, a dose of 10 mg. per kilogram injected two hours after inoculation precipitated death in twelve hours. In other instances, also, control animals survived those treated. The average life of the five controls was seventy-two hours after inoculation, whereas twelve treated rabbits averaged 100 hours. Careful scrutiny of the data will demonstrate that, barring individual variations, the dye has exerted a temporary bacteriostatic action. Yet in no case were we able to sterilize the blood stream, and in that blunt analysis the results are negative.

Following this series, the work was discontinued for a time. One or two attempts were made to treat staphylococcic septicemia in rabbits, with mercurochrome. Results were chiefly negative and were quite comparable to those discussed above. The idea was then suggested that both gentian violet and mercurochrome might be given in safe doses, thereby securing a reinforced bacteriostatic action and at the same time avoiding the toxic effect of either drug in a large dose.

In the experiments that follow, the drugs were injected in 1:200 aqueous solution. Three rabbits were given the same dose of an attenuated culture of *Staphylococcus aureus*.

Rabbit 18 died in twenty-one days.
This rabbit was untreated as a control and lived three weeks, finally dying with abscess formation in all parts of the body and the characteristic collections of pus in the joints.

Rabbit 19 lived.
This rabbit received gentian violet, 5 mg. per kilogram, thirty minutes following inoculation, and one hour later an injection of mercurochrome, 5 mg. per kilogram.

Rabbit 20 lived.
This rabbit received mercurochrome, 5 mg. per kilogram, thirty minutes following inoculation, and one hour later the same dose of gentian violet.

The last two rabbits developed symptoms of a mild arthritis, but recovered and remained alive throughout the three months during which they were observed. In these two animals, the development of the arthritis and the recovery of a small amount of staphylococcic pus from one of the joints assure us that even here a therapia sterilisans magna was not effected. The infection, however, was so effectively reduced that the animals recovered; and in view of the remarkable fatality which staphylococcic septicemia displays for the rabbit, we regard this as a positive therapeutic result.

In an attempt to repeat these results, seven more rabbits were injected with the same dose of staphylococcus. Rabbit 21 was allowed to go untreated as a control. Rabbits 22 and 23 received mercurochrome, 5 mg. per kilogram, one hour after inoculation. Rabbits 24 and 25, one hour after inoculation, received mercurochrome, 5 mg. per kilogram, and at the end of another hour the same dose of gentian violet. Rabbits 26 and 27 received the same treatment, the drugs being injected in the reverse order. All these rabbits died within ten days, the control outliving the treated animals.

Following the disappointing results of this series, we attempted to determine the effect of intravenous medication immediately following inoculation. Fifteen rabbits were given the same dose of staphylococcus.

There were three controls inoculated and untreated:

Rabbit 28 died in ten days.
Rabbit 29 died in five days.

Rabbit 30 died in seven days.
The average life of the controls was 7.3 days.

Three rabbits received gentian violet, 5 mg. per kilogram, immediately following inoculation:

Rabbit 31 died in fifteen days.
Rabbit 32 died in seven days.
Rabbit 33 died in seven days.
The average life of these rabbits was 9.6 days.

Three rabbits received mercurochrome, 5 mg. per kilogram, immediately following inoculation:

Rabbit 34 died in thirty-one days.
Rabbit 35 died in twelve days.
Rabbit 36 died in two days.
The average life of these rabbits was fifteen days.

Three rabbits received gentian violet, 5 mg. per kilogram, immediately and mercurochrome, 5 mg. per kilogram, in one hour:

Rabbit 37 died in three days.
Rabbit 38 died in three days.
Rabbit 39 died in four days.
The average life of these rabbits was 3.3 days.

Three rabbits received mercurochrome, 5 mg. per kilogram, immediately and gentian violet, 5 mg. per kilogram, in one hour.

Rabbit 40 died in seven days.
Rabbit 41 died in two days.
Rabbit 42 died in thirty-five days.
The average life of these rabbits was 14.6 days.

COMMENT

Throughout these experiments, there are seen wide variations in the individual susceptibility of the animals and in their reaction to treatment. In some instances it appears obvious that the medication has hastened the death, apparently by overloading the blood stream with toxic products. Staphylococcic septicemia, as we have employed it, has proved to be an infection of constant fatality to the rabbit. Though the organism has been caused to exhibit considerable variation in virulence, no untreated animal has survived the infection. Gentian violet and mercurochrome, however, have usually exerted a temporary restraining influence on the progress of the disease, and in the case of two rabbits, the combined use of both drugs enabled the animals to survive an infection which killed their control in three weeks.

Our inability to secure repeated cures in subsequent experiments makes the work inconclusive, but the explanation is manifest. The temporary improvement, shown where the medication was wisely administered, is due to the fact that these drugs actually do exert a bacteriostatic action in the blood stream. Blood cultures from treated animals were found negative for short periods. The reappearance of the organism in the blood later is proof that this bacteriostatic power is not sufficiently great to accomplish a therapia sterilisans magna. Bacteria in the tissue spaces and in poorly vascularized areas, such as joints, are not killed. These organisms remain to grow and reinfect the blood stream. We regard the two cures as fortuitous events wherein the infection was so obtunded that the animals were able to survive.

CLINICAL APPLICATIONS

Bearing in mind the introductory facts enumerated in regard to general septicemia, and considering these in the light of our experimental results, we may now proceed to a consideration of the clinical application of gentian violet and mercurochrome intravenously. It is not our purpose to report a large series of cases. The literature of recent months abounds with case reports of septicemia from various causes treated by intravenous injection of these two drugs. Many startling cures have been claimed. Young and his associates[15] have been most enthusiastic. Piper,[16] Hirst, Mooser and Monroe,[17] Shallenberger,[18] Major,[19] Hopkins,[20] Adams,[21] Whitman[22] and numerous others have reported cases representing conditions of erysipelas,[23] streptococcus pneumonia, streptococcus septicemia, colon bacillus septicemia, staphylococcus septicemia, pyelonephritis, perinephric abscess,[24] chronic gonorrhea, puerperal sepsis, phlebitis, subacute endocarditis and a few other conditions. The general trend of opinion in those who have reported cases treated by gentian violet and mercurochrome intravenously is that, at times, startling results may be obtained; but there are failures almost equally numerous. The cases reported in the literature and in the opinions of the writers will total about 40 per cent. definitely improved, 20 per cent. possibly improved, and 40 per cent. unimproved.

We have used these drugs in a number of cases with results comparable to those reported. Our technic for injection into patients has been very simple. Gentian violet we have employed in 1:200 solution made up in sterile distilled water. This solution contains 5 mg. of the dye in each cubic centimeter, and a full dose of 5 mg. per kilogram requires rather a large injection (45 c.c. for a patient weighing 100 pounds, or 45 kg.). More concentrated solutions, however, have a marked tendency to cause thrombosis of the vein at the site of injection. Though this complication is not serious, it is troublesome and should be avoided. The tendency is lessened in the more dilute solutions. We have in most cases used a preliminary injection of 2 mg. per kilogram of body weight, following later with a larger dose as indicated. With mercurochrome, we have employed the same technic. This drug, however, does not cause thrombosis, and a 1 per cent. solution may be used with advantage. In one or two patients receiving mercurochrome, 5 mg. per kilogram, we have noted diarrhea, ptyalism and other evidences of mild mercurial poisoning. Other than that, we have observed no serious untoward results from the injection of either drug. There is, however, much evidence in the literature that mercurochrome is by no means an innocuous drug, and indiscriminate administration is to be discouraged.

Following the intravenous injection of either mercurochrome or gentian violet, there is apt to be a sharp temperature reaction, sometimes a chill. Following this, in favorable cases, the temperature falls rapidly and the improvement is marked. We have observed five or six cases so treated in which the recovery appeared miraculous; but appreciating the extremely variable course which septicemias display, we hesitate to place too much confidence in uncontrolled clinical observations concerning the effect of a specialized treatment.

---

[15] Young, H. H., and Hill, Justina H.: The Treatment of Septicemia and Local Infections by Intravenous Injections of Mercurochrome-220 Soluble and of Gentian Violet, J. A. M. A. **82**: 669-675 (March 1) 1924.

[16] Piper, E. B.: Blood Stream Infection Treated with Mercurochrome-220 Intravenously, Am. J. Obst. & Gynec. **9**: 17-21 (Jan.) 1925.

[17] Mooser, H., and Monroe, P. W.: The Intravascular Use of Gentian Violet, M. J. & Rec. **119**: 58-60 (Jan.) 1924.

[18] Shallenberger, W. F.: Gentian Violet Solution Intravenously in the Treatment of Phlebitis, Surg., Gynec. & Obst. **39**: 291 (Sept.) 1924.

[19] Major, R. H.: Recovery from Subacute Infective Endocarditis Following Gentian Violet Therapy, J. A. M. A. **84**: 278 (Jan. 24) 1925.

[20] Hopkins, F. S.: Intravenous Use of Mercurochrome, *Boston M. & S. J.* **191**: 733 (Oct. 16) 1924.

[21] Adams, D. S.: Mercurochrome-220 Soluble Intravenously, Boston M. & S. J. **191**: 981 (Nov. 20) 1924.

[22] Whitman, W. A.: Mercurochrome-220 Soluble Intravenously in Chronic Gonorrhea and Complications, J. A. M. A. **82**: 1914 (June 14) 1924.

[23] Young, H. H., and Birkhaug, Konrade: The Cure of Scarlet Fever Complicated with Erysipelas and Streptococcus Septicemia by Intravenous Injection of Mercurochrome-220 Soluble, J. A. M. A. **83**: 492-494 (Aug. 16) 1924.

[24] Young, H. H.: Cure of a Retroperitoneal and Perinephric Infection (Abscess) by the Intravenous Injection of Mercurochrome, *Bull. Johns Hopkins Hosp.* **35**: 14 (Jan.) 1924.

From this standpoint the following case is instructive:

> A girl, aged 10, entered the hospital in a much debilitated state from a condition which resembled Banti's disease. Shortly after admission, she developed a severe cervical adenitis, which rapidly spread, involving the whole face and neck in a diffuse cellulitis. The child became critically ill with chills, high fever and marked prostration. The blood culture contained a streptococcus. She developed a metastatic abscess involving the middle finger and entire palm of the left hand. At this time, she lay in a stuporous delirium, and the opinion of all consultants was that she would most certainly die. The intravenous use of both mercurochrome and gentian violet was considered, but neither was employed. The abscess of the finger and palm was drained, and the girl was given hydrotherapy and other routine treatment. Within twenty-four hours, the improvement was miraculous, and her subsequent recovery from the infection was uneventful.

Had either of the drugs in question been employed, the result would have been the same, and we should have had another startling cure credited to intravenous therapy. In marked contrast to this is the case of a man with gangrenous cellulitis involving the neck and anterior chest wall, treated by means of extensive surgical drainage and the intravenous injection of both mercurochrome and gentian violet:

> Three days before admission, a robust, healthy man developed an adenitis and a swelling of the left side of the jaw, apparently secondary to trouble with a tooth, which had been sore for some time. This rapidly extended until at the time of admission the entire anterior surface of the neck was the seat of a boardlike induration and an enormous edema, which extended down the anterior chest wall to the sixth costal cartilage. The breathing was stertorous and the voice was a husky whisper, but the man had been able to walk into the hospital. In the operating room two hours later, the tissues of the involved area were found to be gangrenous and literally putrid. The area was given drainage through numerous incisions. Cultures and smears revealed, in addition to a streptococcus, the vibrion septique of malignant edema. The hopeless nature of the condition was recognized, but the man rallied from the surgical procedure so splendidly that we worked with him night and day in an attempt to save his life. The wounds were given free irrigation with hydrogen peroxid alternating with surgical solution of chlorinated soda (Dakin's solution) and hypertonic salt solution. On account of his inability to swallow, the fluid intake and nutrition were maintained by means of the stomach tube.
>
> Six hours after admission, the patient was given intravenously 2 mg. of gentian violet per kilogram of body weight. Slight improvement was noted, and for twenty-four hours his condition seemed remarkably good. Forty hours from the time of admission, he was given mercurochrome, 5 mg. per kilogram, and two hours later gentian violet in the same dose. This vigorous therapy had no effect on his progressively downward course. Nine hours later, the patient died. It is interesting to note that blood cultures drawn two hours following the last injection of gentian violet were positive for the streptococcus.

These two cases are of interest, not because they lead us to any momentous conclusions. They do, however, assure us that an appreciation of the actual underlying condition forms the only safe basis of a prognosis. Without this understanding, we may easily be misled in matters of therapy. It is certainly not our purpose, however, to deny the value of mercurochrome and gentian violet. It is entirely evident that these substances, which hold bacteria in check even though they do not kill them, may have real therapeutic value. It seems logical to assume that they may hold an infection in abeyance, giving the natural forces of resistance added opportunity to marshal themselves against the invasion. There will always be instances wherein the pathologic processes involved become incompatible with life, and in such cases all therapeutic measures fail. In contrast to these are the numerous disease processes that display a gratifying tendency toward recovery.

In the treatment of these conditions, mercurochrome and gentian violet may be considered as valuable adjuncts, but in any event, recoveries from septicemia with other treatments may be just as startling.

CONCLUSIONS

1. Gentian violet and mercurochrome, when injected in safe doses into the blood stream of rabbits with staphylococcic septicemia, do not accomplish a therapia sterilisans magna.
2. A large dose of either drug injected in the presence of an overwhelming infection may hasten death.
3. Either drug, when properly employed, will exert a temporary bacteriostatic action in the blood stream. The ultimate benefit to be derived from this retardation of the infection depends on the resistive powers of the animal.
4. These observations may be applied directly to the clinical use of gentian violet and mercurochrome intravenously. On this basis, a more rational conception of the therapeutic possibilities may be maintained.

THE RESISTANCE OF NORMAL HUMAN ERYTHROCYTES TO HYPOTONIC SALINE SOLUTIONS *

CHAUNCEY D. LEAKE, Ph.D.
AND
HELEN PRATT, M.S.
MADISON, WIS.

This report is made for the purpose of calling attention to the extremely wide variations in the normal resistance of red blood cells to hypotonic saline solutions. These variations are more striking when the fragility of the erythrocytes is tested quantitatively, according to Simmel's technic.[1]

Briefly, the method is as follows: The standard Simmel's fluid contains 8.2 gm. of sodium chlorid, 0.2 gm. of potassium chlorid, 0.2 gm. of magnesium chlorid, 0.2 gm. of calcium chlorid, 0.2 gm. of sodium acid phosphate and 0.05 gm. of sodium bicarbonate in 1 liter of water. This solution is isotonic with whole blood, is buffered to approximately the same degree as whole blood, has the same p_H, and the salts are in approximately the same proportions as in whole blood. This standard fluid is diluted with water to 70, 60, 50 and 40 per cent., respectively. A red blood cell count is made in the customary manner, Hayem's solution being used. Then, in other red cell pipets, blood drawn from finger or ear pricks is diluted 1:200 with the four hypotonic Simmel's fluids, noted above. The pipets are well shaken, and are then allowed to stand for one hour at room temperature, after which they are again

---

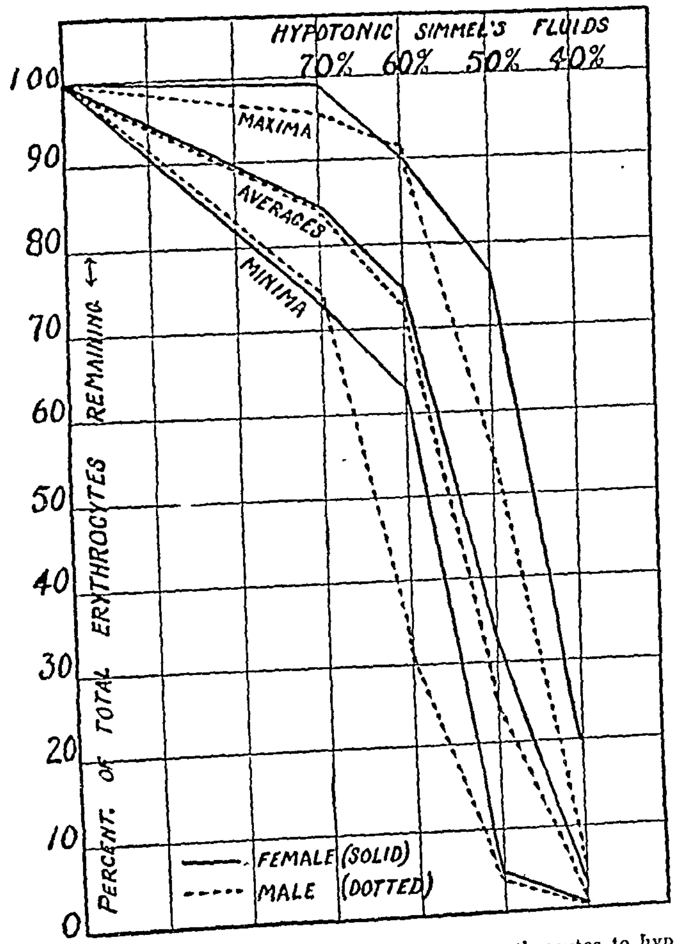
* From the Department of Pharmacology, University of Wisconsin Medical School.

* A more extended report, giving all figures, including some for clinical cases, will be published elsewhere.

[1] Simmel, H.: Die osmotische Resistanz der Erythrocyten, Deutsch. Arch. f. klin. Med. 142:252 (June) 1923.

well shaken, and the actual number of red blood cells remaining in each of the four hypotonic fluids is estimated in the usual way by means of a red cell counting chamber. The figures obtained are then reduced to percentages of the total normal erythrocyte count, obtained at the beginning with Hayem's solution. This method has the great advantage of quantitative accuracy with small amounts of blood.

Simmel[1] gave results on only three normal persons. In order to obtain a more accurate idea of the normal resistance picture to these hypotonic saline solutions, determinations as outlined above were made on twenty-five normal men and twenty-five normal women, ranging in age from 20 to 39, and engaged in active mental and physical work. The general results are shown in the table. The average male red cell count was 5,150,000 per cubic millimeter, whereas the average female red cell count was 4,600,000. About 85 per cent. of the red cells remained in the 70 per cent. Simmel's fluid for both men and women. In the more dilute Simmel's fluids, the average number of red cells remaining was slightly higher for the females than for the males. The probable error of the average and the maximum and minimum figures noted for each percentage of hypotonic solution are also shown in the table.



Variations in the resistance of normal human erythrocytes to hypotonic saline solutions. The maximum and minimum observations together with the averages are shown for a series of twenty-five normal men and twenty-five normal women.

As will be noted, there is a very wide variation between the maximum and minimum figures serving as an index to the resistance of normal human erythrocytes to hypotonic saline solutions. The variation is shown graphically in the chart. The value of these figures is due chiefly to the fact that they have been derived from a comparatively large number of normal human subjects in the prime of life. In the same normal person, considerable variation may be noted if determinations are made from day to day. Duplicate determinations agree within a range roughly indicated by the probable error of the average for the four different hypotonic solutions.

When the resistance of erythrocytes to hypotonic saline solutions is studied in clinical cases, the findings can scarcely be considered abnormal unless they are beyond the extremes reported here. The red blood cells of women seem to be slightly more resistant to hypotonic saline solutions than those of men. The periodic loss of blood that the human female suffers may be a factor concerned here.

Resistance of Normal Human Erythrocytes to Hypotonic Saline Solutions, as Determined by Simmel's Method

	Total Red Blood Corpuscles Hayem's Solution	Percentage of Total Red Cells Remaining in Simmel's Fluid 70%	60%	50%	40%
Average 25 men	5,150,000	84.8 ± 1.2	73.0 ± 2.7	25.0 ± 3.5	1.6 ± 0.2
Maximum	5,680,000	96	92	55	4.7
Minimum	4,820,000	74	31	4	0.3
Average 25 women	4,600,000	85.4 ± 1.5	75.6 ± 1.6	33.2 ± 5.2	2.8 ± 0.8
Maximum	4,940,000	99	90	77	20
Minimum	4,290,000	73	63	5	0.4

SUMMARY

Quantitative determinations of the resistance of erythrocytes to hypotonic solutions by Simmel's method show that an extremely wide variation exists for normal subjects. The red blood cells of women on the average seem normally to be slightly more resistant to hypotonic saline solutions than those of men.

Clinical Notes, Suggestions, and New Instruments

THE TREATMENT OF THRUSH WITH GENTIAN VIOLET*

Harold K. Faber, M.D., and Lloyd B. Dickey, M.D.,
San Francisco

Although in the majority of instances thrush yields, in from four to ten days, to simple cleansing with mild alkaline washes or weak solutions of formaldehyd, it is occasionally very intractable and even dangerous. While usually a minor disease, it is readily transmissible and constitutes one of the major contagious problems in hospital wards for very young infants. For a long time the need has been felt of a local antiseptic which would be prompter and more reliable both as a curative and, in the presence of epidemics, as a preventive agent than those in general use. For such purposes the dyes recently introduced into clinical therapeutics by Young and his associates appeared to us to deserve a trial.

In several instances in which we used mercurochrome-220 soluble (from 1 to 2 per cent. aqueous solutions) definite improvement occurred but not with striking rapidity, and moreover we feared that repeated applications of a soluble mercurial compound to the mouths of very young infants might produce intestinal or other disturbance.

In a recent epidemic of thrush affecting fifteen infants, we used local applications of 1 per cent. aqueous solution of gentian violet, without supplementary washes or other treatment. Smears for the fungus were positive in the twelve cases in which they were made. The gentian violet solution was painted on tongue, gums, hard palate and cheeks, not oftener than once a day, excepting in one case. Treatments were given half-way between feedings, which in our nursery are at intervals of four hours. In four cases, only one application was given; in five cases, two applications; in five cases, three applications, and in one case, nine applications The last case was that of a feeble premature infant with a particularly heavy infection, who received two applications daily.

---

* From the Division of Pediatrics, Stanford University Medical School.

One patient was dismissed before the effects of treatment could be observed. Of the fourteen remaining, seven, or 50 per cent., showed an apparent cure (complete disappearance of visible lesions) in one day or less; five, or 36 per cent., in from two to three days; two, or 14 per cent., in from four to five days. In three instances, the lesions returned after intervals of four, five and nine days, respectively, and in each instance again disappeared after one application of gentian violet. In the last of these cases the patient was treated at irregular intervals in the outpatient clinic, and the lesions again reappeared at later intervals of four and three days, each time disappearing after one treatment. In all instances in which patients were under close daily observation, the lesions after one treatment either disappeared within a day or became very much smaller and less extensive, and progressively diminished until they entirely disappeared. The only untoward effect observed was moderate regurgitation of food noted once in one case following treatment. This may have been a coincidence, since it was not repeated

Toward the end of the ward epidemic we gave prophylactic treatments to nine uninfected infants, none of whom acquired thrush. These were the last to be exposed directly to infected infants, and no further cases of the disease occurred.

While the effects of treatment with gentian violet were strikingly uniform in this series of fifteen cases, we feel justified, in the absence of careful controls, merely in presenting our data and recommending the dye for further trial and study as a local antiseptic in the treatment of thrush and as a prophylactic against this infection in the presence of an epidemic Relapses, after discontinuance of treatment, are occasionally to be expected.

A CASE OF BACILLARY DYSENTERY CONTRACTED IN THE LABORATORY *

Leon S. Lippincott, M D, Vicksburg, Miss

This case is reported because of the possibility of accidental infection during the carrying out of diagnostic laboratory procedures and because of the favorable outcome under the treatment used

June 21, a technician working in the laboratories of the Vicksburg Sanitarium, while performing an agglutination test for the identification of a recently isolated culture of dysentery bacilli, accidentally drew into her mouth through a pipet some of the broth culture. She immediately washed her mouth with alcohol, 95 per cent, and then reported the accident Chlorin water was prescribed in teaspoonful doses every three hours; magnesium sulphate, saturated aqueous solution, two teaspoonfuls every two hours; and a diet to contain no uncooked foods The chlorin water was continued three days, and the salts until 1 ounce had been taken. An autogenous vaccine was prepared from the culture being tested, and administration begun, June 24.

The culture proved to be a dysentery bacillus of the Flexner type, both to agglutination tests and to sugar reactions

Diarrhea began, June 27, with three or four movements, semifluid in consistency and containing much mucus. No macroscopic blood was found, but a few red cells were found microscopically and chemical tests were positive A culture planted, June 28, showed dysentery bacilli of the Flexner type The chlorin water was again given every three hours and the vaccine continued at four day intervals The diarrhea lasted three days, being improved on the second day and much improved the third day. Thereafter, there was no diarrhea

Cultures of specimens of feces, July 8 and again July 17, proved negative for dysentery bacilli

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

IODIPIN 40 PER CENT.—Iodized Sesame Oil 40 Per Cent.-Merck.—An iodine addition product of sesame oil containing from 39 to 41 per cent. of iodine in organic combination.

Actions and Uses.—Iodipin 40 per cent., on account of its high molecular weight, is used as a contrast medium in myelography and pyelography, for detecting urethral strictures and in the spinal column for the location of tumors.

Dosage.—From 1 to 5 Cc. (15 to 75 minims).

Marketed by Merck & Co., New York, by license of the Chemical Foundation, Inc, under U S patent 774,224 (issued November, 8, 1904; expired) and U. S trademark 32,003.

Ampules Iodipin 40 Per Cent. 1 Cc.

Ampules Iodipin 40 Per Cent. 2 Cc.

Iodipin 40 per cent is an oily liquid, insoluble in water, having an oleaginous taste. Its color is brown to black, depending on the thickness of the layer that is examined. Specific gravity at 15 C., from 1.370 to 1.372

Boil 0.5 Cc of iodipin 40 per cent. and 10 Cc. of alcoholic solution of potassium hydroxide (1: 10), in a porcelain dish for about five minutes, evaporate the liquid on a water bath and ignite the residue. Dissolve the residue in 10 Cc. of water, filter the solution, add 5 Cc. of hydrochloric acid to the filtrate, then add chloroform and a few drops of chlorine water and agitate: the chloroform solution is violet. Dissolve 1 Cc of iodipin 40 per cent in 10 Cc. of chloroform, add a few drops of phenolphthalein solution and 0.3 Cc (1 drop) of tenth-normal sodium hydroxide: the liquid becomes red (*limit of acidity*). Mix 10 Cc. of iodipin 40 per cent. with 50 Cc. of petroleum benzin: a transparent liquid results

Transfer into an Erlenmeyer flask about 0.5 Gm of iodipin 40 per cent, weighed accurately; add 15 Cc of alcoholic solution of potassium hydroxide (potassium hydroxide, 3 Gm, in alcohol, sp gr. 0.858 to 0.873, 15 Cc.) and boil the mixture for five minutes under a reflux condenser Evaporate the liquid in a porcelain dish on a water bath and ignite the residue carefully. Dissolve the residue in water, transfer it to a 100 Cc measuring flask, dilute to exactly 100 Cc. and filter (part of the filtrate is used for "a" and part for "b"). (*a*) To 20 Cc of the filtrate add 3 Cc. of hydrochloric acid (sp gr 1.126 to 1.127) and 50 Cc of freshly prepared chlorine water, boil the mixture until the excess of free chlorine is expelled, cool the solution, add an excess of potassium iodide and titrate the liberated iodine with tenth-normal sodium thiosulphate solution: the weight of iodine found corresponds to not less than 39 per cent. nor more than 41 per cent (*b*) To 50 Cc. of the filtrate add 10 Cc. of nitric acid (sp. gr. 1.150 to 1.152) and 10 Cc of tenth normal silver nitrate solution, agitate thoroughly and determine the excess of silver nitrate by titration with tenth normal ammonium thiocyanate solution, using ferric ammonium sulphate as indicator: the amount of iodine found by this method agrees with that found by method (*a*) (*limit of chlorine or bromine*).

PERTUSSIS BACILLUS VACCINE (See New and Nonofficial Remedies, 1925, p. 353).

H. K. Mulford Co, Philadelphia.

Pertussis Bacterin-Mulford (see New and Nonofficial Remedies, 1925, p 354)—Also marketed in packages of one 5 Cc. vial (M174 9) containing 2,000 million killed pertussis bacilli per cubic centimeter; of one 20 Cc vial (M174 4) containing 2,000 million killed pertussis bacilli per cubic centimeter; and of four vials (M174 00) containing, respectively, 250, 500, 1,000 and 2,000 million killed pertussis bacilli

SENSITIZED BACTERIAL VACCINES (See New and Nonofficial Remedies, 1925, p 367).

H. K. Mulford Co, Philadelphia.

Typho Serobacterin (Sensitized Typhoid Vaccine)-Mulford (see New and Nonofficial Remedies, 1925, p 368).—Also marketed in packages of three syringes (M136 10) containing, respectively, 1,000, 2,000 and 2,000 million killed sensitized typhoid bacilli; of three 1 Cc. vials (M136 50) containing, respectively, 1,000, 2,000 and 2,000 million killed sensitized typhoid bacilli, and of thirty 1 Cc vials (M136-10) (hospital size), being ten sets of three doses containing, respectively, 1,000, 2,000 and 2,000 million killed sensitized typhoid bacilli.

Typho Serobacterin Mulford, Mixed (Sensitized Triple Vaccine TAB) (see New and Nonofficial Remedies, 1925, p 369).—Also marketed in packages of three hypo-units (M138-79) containing in dose one, 1,000 million killed sensitized typhoid bacilli and 500 million each of killed sensitized paratyphoid bacilli A and B, and in doses two and three, respectively, twice the number of bacilli in the first dose, of thirty 1 Cc. vials (M138 5) (hospital size), being ten sets of three doses, the first containing 1,000 million killed sensitized typhoid bacilli, and 500 million each of killed sensitized paratyphoid bacilli A and B, the second and third containing, respectively, twice the number of bacilli in the first dose.

---

* From the Laboratories of the Vicksburg Sanitarium.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - - Chicago, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - - Five dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, SEPTEMBER 19, 1925

CANCER-LIKE CHANGES IN TISSUE CULTURES OF MAMMARY GLAND

The physiology of the mammary gland has been the subject of much unsatisfactory experimentation. In order to study the influences of internal secretion on its structure and function, Alexander Maximow of the department of anatomy at the University of Chicago made tissue cultures of the mammary gland of the rabbit in different mediums.[1] In cultures in rabbit blood plasma and extract of rabbit bone marrow, appearances developed that resembled carcinoma closely. These appearances might vary in different cultures even of the same series, but in the most pronounced cases the microscopic picture of carcinoma was produced so perfectly that without knowledge of the source of the tissue a pathologist might be justified in concluding that it concerned carcinoma of the breast. It should be borne in mind that in this series of experiments the medium consisted of a mixture of the blood plasma of young rabbits and extract of marrow of grown rabbits, the extract from pregnant rabbits being apparently especially active. The point is that nothing foreign to the species was introduced into the cultures. The growth of cells that led to the appearance of carcinoma started in various places of the explant at the cut ends of the gland ducts—in other words, the growth was polycentric. A fundamental change in the duct cells must have taken place, because the cells not only multiplied but also enlarged and infiltrated the interstitial connective tissue, no matter whether this was alive or dead, and there formed epithelial masses or nests as well as the so-called pearls of squamous cell carcinomas.

In discussing the possible factors in this remarkable growth in the tissue cultures, Maximow mentions first the influence of the mere cutting out of the piece of tissue from its normal surroundings, suggesting that the traumatism might act as a stimulant to the epithelium at the ends of the ducts. As the second factor he emphasizes the chemical effect that substances in the extract of the bone marrow may have, and says that whatever the effect may be, it does not concern substances that are foreign to the animal in question. In the third place, he points out that there is reason to believe that the functional state of the gland at the time of explantation and that peculiarities of the individual animal may be of importance in ways that cannot be specified definitely at the present time. The question whether the infiltrating epithelial cells in the cultures become changed irreversibly into genuine cancer cells can be solved only by inoculation of suitable cultures into living rabbits. Simply to continue the tissue growth in cultures outside the body would not establish whether the cells have acquired permanent malignant properties or not. Reimplantation of carcinomatoid tissue cultures would solve this question only in case the result is positive; that is to say, results in carcinoma of the inoculated animal. If no growth results, the issue would not be settled because it is established that inoculation of spontaneous tumors in the same species does not always give positive results. In the event of a positive outcome of inoculation with cancerous cultures, it may become possible to determine whether microbes of any kind take part in the process, not to mention the study of other problems that immediately suggest themselves, such as the influence of various agents on the cancer cells.

The further work by Maximow with his tissue cultures will be followed with lively interest because of the bearing the phenomenon he describes in such cultures may have on the cause of cancer. Is it possible that means have been found whereby epithelial cells can be made to take on malignant properties under relatively simple and controllable experimental conditions?

WHAT CONSTITUTES A SATISFACTORY DRUG?

It is stated, on the authority of competent historians, that there never has been a period in human history when drugs have not been known. Although one may cite many older references to the employment of the long familiar compounds of antimony or mercury, of aconite, belladonna or cinchona products, in contrast with the simple decoctions of camomile, spearmint, sage and the like, it is nevertheless true that the exact study of the actions of drugs dates back scarcely three quarters of a century. The modern science of pharmacology has arisen since the establishment of its first special laboratory at Dorpat in 1856, a period little beyond the working life-span of many living physicians.

In the earlier days of this scientific development along modern lines, the foremost efforts were directed toward ascertaining precisely how the known drugs act in the body in both health and disease. In a sense, such investigation often served merely to give a rational explanation to long established empiricism—a fact well illustrated in the development of present-day information about digitalis, for example.

---

[1] Maximow, Alexander: Ueber krebsähnliche Verwandlung der Milchdrüse in Gewebskulturen, Virchows Arch. f. path. Anat. 256: 813-845, 1925.

Presently, however, it no longer sufficed to explain the actions of well known drugs or to unravel the possibilities of less familiar ones. The development of organic chemistry, in particular, paved the way for the creation of entirely new products endowed with novel potencies. To some extent it has become possible to predict some of the action of such synthetic compounds, and even to undertake their preparation with the precise purpose of developing certain desired properties. It is in this way that the list of useful antiseptics, antipyretics, analgesics and narcotics has already been extended to include many new and unusually desirable compounds. To a certain extent it has become possible for the physician to affect a desired tissue without interfering with the function of other tissues. With the progress of our understanding of the etiology of infectious diseases and other maladies of microbiotic origin, it has become highly desirable to destroy the harmful invader without injuring its host. For such purposes the ideal drug would be one that would kill the parasites without harming the patient.

In the discovery of specific chemicals as the medium of salvation from certain forms of disease, particularly those of infectious origin, lies a hope, perhaps somewhat utopian, for the medical progress of the future. Meanwhile, plans are being laid in various laboratories for such projects. The busy practitioner may not have given much consideration to all that this involves in respect to both constructive directions and criticism. A good summary of the requirements for a drug that can be considered a satisfactory therapeutic agent has recently been compiled by Christiansen[1] of the Medical School of Harvard University. The first dictum is that the effective therapeutic dose should be far below the toxic dose. Low toxicity is particularly desirable for drugs that are to be placed in the hands of patients. Ease of administration is extremely advantageous; the preference for a drug that can be used safely and effectively is obvious. Stability is a quality of great value, because a substance that decomposes readily entails financial loss and may either lose potency or acquire toxicity. Drugs should as a rule preferably exhibit ready solubility and be susceptible of rapid absorption under all conditions in which they may be prescribed. When acute disease is involved or life is in danger, it is important that relief shall be secured promptly. Drugs for use by injection should not only be readily soluble but also withstand sterilization without detriment. They should not injure the tissues locally, whether these be subcutaneous, muscular or vascular. To act efficiently, the substance should not be excreted or destroyed in the body before it has had time to act on the infecting agent; nor should it tend to be excreted so slowly that accumulation in the internal organs may give rise to delayed symptoms of poisoning. Finally, tolerance to the drug should not be readily developed by the parasite against which the drug is to be used. These are, indeed, exacting demands. They illustrate the quandaries of the investigator in the field of the synthetic production of new drugs. They should also move us to a high sense of obligation when success, even in limited degree, crowns his tiresome efforts.

---

[1] Christiansen, W. G.: Organic Derivatives of Antimony, New York, Chemical Catalog Company, 1925.

NAUSEA

One reason why experimentation on animals has yielded so much information of value in relation to the physiology and pathology of man lies in the possibilities it affords for direct observation of functions that cannot readily be studied in the same way during life in the human organism. In the case of sensations, however, the situation is not so simple. The interpretation of sensations, so far as they may arise in animals, offers many difficulties. Frequently the existence of certain sensory states can only be postulated because of some associated phenomena. Nausea is a sensation; consequently, as a recent writer[1] has pointed out, its presence must be identified with some objective or motor manifestation before it can be studied effectively by animal experimentation.

For this reason the mechanism responsible for the genesis of nausea has not yet been clearly expounded. Keeton[1] of Chicago has recently recorded the sensations arising from duodenal stimulation in a group of patients, of whom many showed circulatory instability. Chief among these sensations was nausea, although statements about dizziness, pressure sensations referable to the head and neck, headache and syncope were also elicited. There are various reasons for assuming that nausea may be related to duodenal motor activities, among which antiperistalsis, increased tonus of the pylorus, or increased tonus of the upper reaches of the intestine are the foremost to suggest themselves. The descriptions of the onset of nausea in "waves" do not contradict any of these possibilities. After reviewing the somewhat indefinite evidence, Keeton has joined the group of those who believe that nausea results from a motor duodenal dysfunction, a pathologic duodenal antiperistalsis being at present the most probable of the explanations. Nausea may, of course, originate from widely different localities in the body. Distended hollow organs, the pregnant uterus, or a traumatized nerve may initiate the changes that lead to the characteristic sensation. This does not negate the possibility that they act through the intermediation of change in duodenal motor function, though such an explanation cannot yet be regarded as definitely proved. The other sensations, such as dizziness and headache, that can be elicited in some persons through influences brought to bear on the duodenum, by mechanical or chemical means or both, are regarded by Keeton as of circulatory origin. He explains them on the basis of a reflex spread into the vegetative (sympathetic-autonomic) nervous system, involving primarily the vasomotor mechanism.

---

[1] Keeton, R. W.: Nausea and Related Sensations Elicited by Duodenal Stimulation, Arch. Int. Med. 35: 687 (June) 1925.

Nausea is commonly a "prodromal" stage in the act of vomiting. If Keeton is correct, the primary motor phenomenon in this consists of an intestinal antiperistalsis. Secondary motor phenomena are to be found in salivation, sweating, circulatory and pilomotor changes. The muscles of the hairs may bring about the familiar "goose flesh." These effects are developed in the course of the spread of the vomiting act through the vegetative nervous system. The stage of "emesis" results, on Keeton's hypothesis, when the convulsion sweeps out of the vegetative system and involves the muscles of the stomach, esophagus, respiration, and the skeletal muscles in general.

ACUTE INTESTINAL OBSTRUCTION

Acute intestinal obstruction is one of the disconcerting clinical conditions that present a confusing problem to the physician. Intestinal occlusion can be imitated experimentally so as to bring about many symptoms identical with those seen in human patients; nevertheless the search for the determining etiologic factors has directed the investigators into a considerable variety of pathways each of which seemed at first to lead to a correct solution, yet ultimately failed o satisfy on critical consideration. The fallacy of *post hoc ergo propter hoc* seems to have been displayed [illegible]spicuously in this quest. Concomitants have doubt[illegible]s been confused at times with causes. Consequently he question of the lethal factors remains at issue and herefore justifies further debate.

It is important to distinguish between two well defined types of acute intestinal occlusion. In one of hese, the acute strangulation observed in volvulus, ntussusception and strangulated hernia, there is not merely a closure of the intestinal lumen but also a more or less extensive interference with the arterial, venous and lymphatic circulations of the bowel wall and mesentery. Death in such cases is typical of shock, toxemia and peritonitis. Temperature, pulse, blood pressure and respiration may be affected very early. A second type of simple obstruction is seen when there s complete blockage of the bowel lumen only, with a minimum of circulatory involvement. This may be brought about by calculi, foreign bodies, adhesions and bands. The symptoms are somewhat delayed in uncomplicated cases; and they are as a rule free from "shock" manifestations of the acute sort.

From time to time the pendulum of enthusiasm for a given theory has swung from one extreme to another. Even today we are not prepared for a final opinion. Since animals having simple intestinal obstruction may live for some time, shock can scarcely be the dominant lethal factor. Bacteremia has long seemed to offer a highly plausible hypothesis; but the absence of a demonstrable invasion of micro-organisms in fatal cases prompts a search for a more tenable etiology. Some plausibility was given to the theory of perverted secretion; i. e., the secretion of a toxin by the intestinal mucosa proximal to the obstruction. Its fallacy seems to be established by the evidence that animals live after drainage of open duodenal and jejunal loops into the peritoneal cavity.[1]

The accusation of toxemia due to the absorption of poisons produced by bacterial action on the stagnant bowel fluids accumulating above the obstruction cannot be so easily dispelled. Foster and Hausler[2] have marshaled the evidence against it. From their experiments at the University of Oregon Medical School in Portland they take issue with those who have injected fluid from occluded intestinal loops intravenously and provoked untoward symptoms. Undoubtedly, as they admit, intestinal secretions may become very toxic when exposed to bacterial action. Death following intravenous administration, however, proves little, since it is well known that many substances are fatal when introduced directly into the blood stream, whereas if allowed to pass through the normal intestinal mucosa the poisonous properties are not similarly manifested. Introduced into the blood, "peptone" is a poison; in the alimentary tract it functions as a food.

The harmfulness of dehydration, a feature so pronounced in many cases of obstruction with consequent vomiting and failure of fluid intake, is not so easily denied. The loss of fluid is admittedly a complicating factor, though probably not the decisive cause of death in most cases of simple obstruction. Replacement of fluid is helpful in inducing relief. Since death in simple obstruction uncomplicated by tissue injury falls within the same period of time as in complete starvation (i. e., lack of food or water) the Oregon investigators are inclined to ascribe to the latter the decisive lethal influence. The chemical changes in the blood in simple intestinal obstruction are almost identical with those found in complete starvation. Hypochloremia, a symptom described by Haden and Orr,[3] is not present. Dehydration is usually very pronounced. Fluid loss through urinary and respiratory excretion is probably similar in starvation and obstruction. As Foster and Hausler point out, the increased viscosity of the blood, the high red cell and hemoglobin values, the decreased blood volume flow through the extremities, the chemical changes in the blood, the extreme loss of body weight, and the ultimate alterations in temperature, pulse and respiration—all have been observed in studies of starvation. Hence their dictum: death in uncomplicated cases of acute intestinal obstruction is due to starvation.

---

[1] Dragstedt, L. R.; Moorhead, J. J., and Burcky, F. W.: Experimental Study of Intoxication in Closed Intestinal Loops, J. Exper. Med. 25: 421 (March) 1917.

[2] Foster, W. C., and Hausler, R. W.: Acute Intestinal Obstruction, III, Simple Obstruction, Arch. Int. Med. 36: 31 (July) 1925.

[3] Haden, R. L., and Orr, T. G.: Effect of Inorganic Salts on the Chemical Changes in the Blood of the Dog After Obstruction of the Duodenum, J. Exper. Med. 39: 321 (Feb.) 1924.

Current Comment

FREQUENCY OF HYPERTHYROIDISM AND GASTRIC CANCER

By investigation of United States Census and draft board reports, a British statistician[1] has discovered a positive frequency relation between hyperthyroidism and cancer of the stomach. Furthermore, the same correlation holds for Switzerland. To find out what underlies this relation obviously requires studies beyond the field of statistics. A subsidiary study discloses that, in the United States, simple hyperthyroidism and the exophthalmic type are associated, and here the United States and Switzerland are not in accord. In Switzerland, where simple hyperthyroidism is frequent, the exophthalmic form is not. The statistician speculates on two possible factors in the production of the exophthalmic type: "(i) a goiter-producing factor whose intensity is indicated by the prevalence of simple goiter, (ii) another factor, probably of nervous origin, which is only present to a slight extent in Switzerland, but is more pronounced in the United States and almost universally present in England and Wales." The statistical method frequently uncovers points for intensive practical research. Unfortunately, the figures occasionally lead to impressions that never are justified by actual observations.

EFFECTS OF WAR GASES ON THE LUNGS

Usually the study of pathology is looked on as an aid primarily to the diagnosis, treatment and prognosis of disease. The widespread institution of workmen's compensation acts, and more recently the problem of care and compensation for soldier victims of the World War, have made new and often unanticipated demands for accurate information about pathologic conditions. An illustration of this is afforded by the questions arising in relation to the sick veterans who have been gassed. The immediate clinical effects and the acute lesions are already known; but it is not yet clear whether chronic disorders persist after the symptoms have subsided. Koontz[2] of the Edgewood Arsenal Medical Research Division has completed a study of the delayed effects to approximately lethal concentrations of phosgen, mustard gas, lewisite, chlorin, chlorpicrin and methyldichlorarsin in dogs, a species having lungs even more delicate than those of man. In the majority of the animals, pathologic lesions could not be demonstrated from two months to a year after recovery from the gassing. In a minority of instances, permanent lung damage was discovered; but it was not widespread, being confined generally to small areas, and usually in the form of small patches of organization, thickening of the bronchial walls with loss of elasticity, or occasional closing of the bronchioles by organized exudate. Such damage ultimately results in a small amount of fibrous scar tissue that can scarcely affect the functional efficiency of the lungs. Therefore Koontz believes it reasonable to conclude that in the vast majority of surviving human patients, who were not gassed so severely and who receive better hospital care all lesions disappear within a short time after the gassing. The small amount of fibrosis remaining in the minority of cases can hardly be a cause of serious disability.

CHIROPRACTIC IN THE DRAMA

It was inevitable that the farce that is chiropractic should find a dramatist. In "Easy Terms," a three act comedy that opened in Chicago recently and will proceed shortly to New York, Crane Wilbur has made his villain one of the smooth talking fraternity; he acts the part himself to perfection. The lines bring out logically the predominance of woman patients in the chiropractic clientele. A scene in which a chiropractic treatment is given to Donald Meek, who plays the part of the constantly abused male parent of the family, is the funniest scene shown in Chicago since Baileff's Chauve-Souris gave Chekhov's "The Dentist." The final lines on the subject, perhaps a sop to the chiropractors, are:

> *Peter.*—"I've just found out that that fellow isn't even a chiropractor; he hasn't got a diploma."
>
> *Pater.*—"My G——; do you have to have a diploma for that?"

So the farce that forms the most of chiropractic has found its interpreter! Now who will show the tragedy of its ignorant incompetence?

DIGESTIVE ENZYME THERAPY ON THE WANE

Not so very many years ago many physicians would have considered it a handicap to be deprived of the use of digestive enzymes in their daily prescribing. Even the most conscientious, while resisting the alluring color and pleasing taste of a widely advertised elixir claimed to contain pepsin, pancreatin and diastase, nevertheless gave pepsin in certain conditions, diastase in others, and, in cases of supposed pancreatic deficiency, pancreatin, in the hope that the latter would safely reach its destination and have some action. Today a vast majority of clinicians make little or no use of digestive enzymes. The report of W. A. Bastedo,[1] summarizing the replies to a questionnaire submitted at the request of the Council on Pharmacy and Chemistry to the members of the American Gastro-Enterological Association, brings this out forcibly. The replies of fifty-nine gastro-enterologists, members of the American Gastro-Enterological Association, indicate that many do not prescribe gastric enzymes at all, proved. The other sensations, such as dizziness and headache, that can be elicited in some persons through influences brought to bear on the duodenum, by mechanical or chemical means or both, are regarded by Keeton as of circulatory origin. He explains them on the basis of a reflex spread into the vegetative (sympathetic-autonomic) nervous system, involving primarily the vasomotor mechanism.

---

[1] Stocks, Percy: Some Further Notes on Cancer and Goiter Distributions, Biometrika **17**: 159 (June) 1925.

[2] Krentz, A. R.: When Do Lungs Return to Normal Following Exposure to War Gases? Arch. Int. Med. **36**: 204 (Aug.) 1925.

[1] Bastedo, W. A.: The Use and Utility of Digestive Enzymes in Therapeutics, J. A. M. A. **85**: 743 (Sept. 5) 1925.

Nausea is commonly a "prodromal" stage in the act of vomiting. If Keeton is correct, the primary motor phenomenon in this consists of an intestinal antiperistalsis. Secondary motor phenomena are to be found in salivation, sweating, circulatory and pilomotor changes. The muscles of the hairs may bring about the familiar "goose flesh." These effects are developed in the course of the spread of the vomiting act through the vegetative nervous system. The stage of "emesis" results, on Keeton's hypothesis, when the convulsion sweeps out of the vegetative system and involves the muscles of the stomach, esophagus, respiration, and the skeletal muscles in general.

ACUTE INTESTINAL OBSTRUCTION

Acute intestinal obstruction is one of the disconcerting clinical conditions that present a confusing problem to the physician. Intestinal occlusion can be imitated experimentally so as to bring about many symptoms identical with those seen in human patients; nevertheless the search for the determining etiologic factors has directed the investigators into a considerable variety of pathways each of which seemed at first to lead to a correct solution, yet ultimately failed to satisfy on critical consideration. The fallacy of *post hoc ergo propter hoc* seems to have been displayed conspicuously in this quest. Concomitants have doubtless been confused at times with causes. Consequently the question of the lethal factors remains at issue and therefore justifies further debate.

It is important to distinguish between two well defined types of acute intestinal occlusion. In one of these, the acute strangulation observed in volvulus, intussusception and strangulated hernia, there is not merely a closure of the intestinal lumen but also a more or less extensive interference with the arterial, venous and lymphatic circulations of the bowel wall and mesentery. Death in such cases is typical of shock, toxemia and peritonitis. Temperature, pulse, blood pressure and respiration may be affected very early. A second type of simple obstruction is seen when there is complete blockage of the bowel lumen only, with a minimum of circulatory involvement. This may be brought about by calculi, foreign bodies, adhesions and bands. The symptoms are somewhat delayed in uncomplicated cases; and they are as a rule free from "shock" manifestations of the acute sort.

From time to time the pendulum of enthusiasm for a given theory has swung from one extreme to another. Even today we are not prepared for a final opinion. Since animals having simple intestinal obstruction may live for some time, shock can scarcely be the dominant lethal factor. Bacteremia has long seemed to offer a highly plausible hypothesis; but the absence of a demonstrable invasion of micro-organisms in fatal cases prompts a search for a more tenable etiology. Some plausibility was given to the theory of perverted secretion; i. e., the secretion of a toxin by the intestinal mucosa proximal to the obstruction. Its fallacy seems to be established by the evidence that animals live after drainage of open duodenal and jejunal loops into the peritoneal cavity.[1]

The accusation of toxemia due to the absorption of poisons produced by bacterial action on the stagnant bowel fluids accumulating above the obstruction cannot be so easily dispelled. Foster and Hausler[2] have marshaled the evidence against it. From their experiments at the University of Oregon Medical School in Portland they take issue with those who have injected fluid from occluded intestinal loops intravenously and provoked untoward symptoms. Undoubtedly, as they admit, intestinal secretions may become very toxic when exposed to bacterial action. Death following intravenous administration, however, proves little, since it is well known that many substances are fatal when introduced directly into the blood stream, whereas if allowed to pass through the normal intestinal mucosa the poisonous properties are not similarly manifested. Introduced into the blood, "peptone" is a poison; in the alimentary tract it functions as a food.

The harmfulness of dehydration, a feature so pronounced in many cases of obstruction with consequent vomiting and failure of fluid intake, is not so easily denied. The loss of fluid is admittedly a complicating factor, though probably not the decisive cause of death in most cases of simple obstruction. Replacement of fluid is helpful in inducing relief. Since death in simple obstruction uncomplicated by tissue injury falls within the same period of time as in complete starvation (i. e., lack of food or water) the Oregon investigators are inclined to ascribe to the latter the decisive lethal influence. The chemical changes in the blood in simple intestinal obstruction are almost identical with those found in complete starvation. Hypochloremia, a symptom described by Haden and Orr,[3] is not present. Dehydration is usually very pronounced. Fluid loss through urinary and respiratory excretion is probably similar in starvation and obstruction. As Foster and Hausler point out, the increased viscosity of the blood, the high red cell and hemoglobin values, the decreased blood volume flow through the extremities,

---

[1] Dragstedt, L. R.; Moorhead, J. J., and Burcky, F. W.: Experimental Study of Intoxication in Closed Intestinal Loops, J. Exper. Med. **25**: 421 (March) 1917.

[2] Foster, W. C., and Hausler, R. W.: Acute Intestinal Obstruction, III, Simple Obstruction, Arch. Int. Med. **36**: 31 (July) 1925.

[3] Haden, R. L., and Orr, T. G.: Effect of Inorganic Salts on the Chemical Changes in the Blood of the Dog After Obstruction of the Duodenum, J. Exper. Med. **39**: 321 (Feb.) 1924.

DISASTER RELIEF

Dr. W. A. Pusey, chairman of the Committee on Disaster Relief, submitted a report outlining a plan of organization whereby in times of disaster the American Medical Association, its constituent state associations and its component county societies, through properly designated persons, can undertake to render medical relief in cooperation with the American Red Cross. This plan will be submitted through the chairman of the Committee on Disaster Relief to the constituent state associations and to the component county societies.

REDUCTION OF SPECIAL TAXES

The Board approved a draft of a communication to be addressed to the chairman of the Committee on Ways and Means of the House of Representatives, to the chairman of the Committee on Finance of the Senate and to the Secretary of the Treasury, seeking reduction of certain taxes imposed on physicians by the federal government, and amendment of regulations whereby the deduction in income tax returns of expenses incurred in attending scientific meetings and graduate courses of instruction are now disallowed. The purpose of this letter is to seek relief from what is believed to be unfair discrimination with regard to income tax reduction, and to secure relief from the imposition of the tax now borne by physicians under the Harrison Narcotic Act.

SURVEY OF NURSE EDUCATION

The Board of Trustees, after the matter had been considered by its Finance Committee, did not concur in recommendations of the Council on Medical Education and Hospitals and the Reference Committee on Medical Education of the House of Delegates to the effect that an appropriation be made for the purpose of making a survey of nurse education in the United States.

NEW MACHINERY

Authorization was given for the purchase of needed machinery for the printing plant of the Association.

RESEARCH FELLOWSHIPS

The question of the establishment of research fellowships was considered by the Board and referred to a committee whose report will be received at the meeting of the Board to be held in November.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public *health*, etc.)

ALABAMA

Personal.—Dr. William D. Haggard, Nashville, Tenn., President of the American Medical Association, will be the principal speaker at the meeting of the Northwest Alabama District Medical Society, Decatur, September 25; the society comprises seventeen North Alabama counties.

Quo Warranto Proceedings Against Chiropractors.—Dwight Evans, W. A. Nesbit and Beatrice Nesbit, chiropractors of Anniston, were given a hearing in quo warranto proceedings, August 28, in which they were called on to show why they should not be barred from practicing in Calhoun County. Evans, it is reported, was sentenced to sixty days in prison and fined $250; Nesbit pleaded guilty and was fined $50 and costs, and the case against his wife was nolle prossed. The board of censors of the Calhoun County Medical Society preferred charges against Evans a year ago; he was fined $100 and costs, but pending the outcome of an appeal, the charges were withdrawn on agreement that he would cease practicing in Alabama. Evans left Anniston, but returned several months ago and reopened an office.

ARKANSAS

Personal.—Dr. John T. Palmer, Pine Bluff, has been reappointed member of the state medical examining board.——Dr. William F. Manglesdorf, Little Rock, has been appointed chief chemist for the department of conservation and inspection at the state capital, Little Rock.

Medical School Opens at Full Capacity.—The forty-seventh annual session of the University of Arkansas School of Medicine, Little Rock, opened, September 17, with an enrolment of 175, the largest in its history, which is full capacity. There are sixty students in the freshman class, fifty of whom are resident students. The first two years of instruction will be given now at the laboratory building and the last two at the Isaac Folsom Clinic and the Little Rock General Hospital, St. Vincent's Infirmary and the Baptist Hospital. The following additions have been made to the faculty; Byron L. Johnson, professor of microscopic anatomy; Dr. Herbert H. Howze, instructor in pathology and serology; Dr. George Vincent Lewis, instructor in surgery; Dr. Royal Jackson Calcote, instructor in obstetrics and gynecology, and Dr. Joseph P. Delaney, Jr., instructor in medicine. Dr. James R. Wayne, Jr., will be associate professor of surgery; Dr. Verdo Toy Webb, instructor in hygiene, and Dr. Oliver C. Nelson, formerly of the Mayo Clinic, Rochester, Minn., associate professor of medicine. Fifty beds have been set aside in the Baptist Hospital for the treatment of the poor, the only expense attached being the actual cost of hospital maintenance.

CALIFORNIA

Stanford University to Perpetuate Work of Burbank.—It has been announced that tentative plans have been made for the transfer of the experimental farm of Luther Burbank at Sebastopol to the control of Stanford University which will raise an endowment fund sufficient to insure carrying on his work.

State Board Sustained.—Judge Shaw in superior court, Los Angeles, recently rendered a comprehensive opinion, in which he sustained the action of the state board of medical examiners in revoking the license to practice of Dr. Frank P. Young, Los Angeles, who was charged, among other things, with issuing fradulent diplomas (The Journal, Nov. 29, 1924, p. 1774).

Another "Foreign Graduate" Arrested.—A representative of the state board of medical examiners arrested "Dr." W. Whitman, 643 Call Building, San Francisco, July 11, on a charge of practicing medicine without a license and of obtaining money under false pretenses. Whitman is said to have told a "patient" who happened to be an operative of the state board that he was a graduate of German and French medical colleges and had taught the "wonders of radium ore treatment" at Johns Hopkins University Medical School and other universities throughout the world. He advised this patient to drink water charged with "Anzac-Radium Ore Brickette and never grow old," and to "take Radioactive Polizer Compound and never be sick." Whitman is not a physician but is said to be a director of the Muidar Radium Ore Company, which was incorporated in California, July 1. In Whitman's office were a stethoscope and a sphygmomanometer. He is said to have prescribed Radium Ore Brickettes (for from $25 to $100) and Polizer Compound Capsules and radium pills. Whitman admitted that the ore used was not radium.

DISTRICT OF COLUMBIA

Report of Health Officer.—The Washington, D. C., death rate among infants under 1 year of age is the lowest in its history, according to the annual report of District Health Officer Fowler. The death rate for white infants was 61.1 per thousand and 100.2 for colored infants, an average of 75.7. The new low death rate for infants is due to the improved education of mothers, and for this much credit is due medical science. The report shows that in 1924, 147 cases of smallpox were reported for the District; from January to June, 1925, there were fifty-nine cases and twenty deaths; of the fifty-nine persons who had smallpox, only four had ever been successfully vaccinated—one fifty years before the attack, one thirty-eight years before, one eighteen and one fourteen years before the attack. Each of these patients had the disease in relatively mild form and recovered.

ILLINOIS

Resolution on Birth Control.—At a recent meeting of the Rock Island and Scott County Medical Society at Pine Knoll Sanitarium, Davenport, Iowa, Dr. Carl H. Davis, Milwaukee, spoke on "The Diagnosis and Treatment of Nonmalignant Diseases of the Cervix Uteri"; Dr. Lewis Cole on "Gastric while those who do employ such enzymes confine their use almost wholly to cases of demonstrated or supposed enzyme deficiency. Furthermore, almost all who do prescribe them show no great enthusiasm over the results of their use, except possibly in the case of pancreatin in proved pancreatic deficiency. The conclusion seems inevitable that such preparations are of minor importance in therapeutics. Unfortunately, the report does not permit any definite conclusion with regard to the value or uselessness of any of the gastric enzymes now offered for the physician's prescription. However, it fully justifies the estimate of the Council on Pharmacy and Chemistry which states, in the chapter on Digestive Enzymes (N. N. R., 1925), that the utility or need for the internal administration of digestive enzymes is problematic. The Bastedo report is additional evidence of the untiring efforts of the Council to supply the medical profession with up-to-date and impartial information with regard to the actions and value of drugs.

INTERNATIONAL UNITS IN ANOTHER FIELD

Twenty-one countries were represented at the first international congress of radiologists, in July. The two hundred and seven British hosts were followed, numerically, by Germany and the United States, with sixty-five and sixty-three representatives, respectively. One outstanding effort of the congress was to fix international units and standards for roentgen-ray work. A group, headed by Sir William Bragg, will nominate an international committee to study measurement. The day is past when all written science was in Latin and all scientists could read it. In the present day, it is encouraging to see one organization after another striving for universal adoption of rational units of measure.

DUST AND PULMONARY DISEASE

Although mineral dust was thought to be a cause of pulmonary disease in the days of Paracelsus, scientific consideration did not assign it proper importance in this country until within the last ten years. In 1917 the Bureau of Mines issued a bulletin on silicosis in miners in the Joplin district of Missouri. More recently the Department of Labor has issued another bulletin with reference to the granite industry, and various other contributions have appeared elsewhere. Especially notable is the work of Movrogordato and Watkins-Pitchford at the South African Institute for Medical Research. The state department of labor in New York[1] has just published a special bulletin on pneumonoconiosis which gives complete histories, examinations, temperature charts, roentgenograms and colored plates of the lungs in two cases of silicosis and one case of anthracosis with tuberculosis superinduced. This is an effort to stimulate study and to throw light on a health problem that affects chiefly workers in mines and certain mills. The millions of people in our large cities who constantly breathe air that is unnecessarily polluted with both gaseous and solid materials will find in it much to interest them.

Association News

MINUTES OF THE MEETING OF THE BOARD OF TRUSTEES, HELD AT HEADQUARTERS, CHICAGO, SEPT. 4, 1925

The Board of Trustees of the American Medical Association met in Chicago, September 4.

FINANCE COMMITTEE

Dr. Thomas McDavit, Dr. C. W. Richardson and Dr. J. H. J. Upham were appointed members of the Finance Committee, and these appointments by the chairman were confirmed by the Board.

NOVEMBER MEETING

The date of the next meeting of the Board was set for Nov. 19, 1925.

COMMITTEE ON SCIENTIFIC EXHIBIT

The report of the Committee on Scientific Exhibit was received, and Dr. Ludvig Hektoen of Chicago and Dr. Urban Maes of New Orleans were reelected for a period of three years to serve as members of the Advisory Committee to the Committee on Scientific Exhibit.

CHAIRMAN OF LOCAL COMMITTEE OF ARRANGEMENTS FOR DALLAS SESSION

The nomination by the Dallas County Medical Society of Dr. E. H. Cary for chairman of the Local Committee of Arrangements was confirmed by the Board.

COUNCIL ON PHYSICAL THERAPY

In compliance with the terms of resolutions adopted by the House of Delegates, a Council on Physical Therapy was created and the members of the Council elected. The names of the members will be published as soon as acceptances have been received.

ARCHIVES OF PATHOLOGY AND LABORATORY MEDICINE

It was decided to publish a journal on pathology to be known as the *Archives of Pathology and Laboratory Medicine*, beginning with January, 1926. The members of the editorial board for this new journal were selected, and their names will be published when acceptances have been received.

APPROPRIATIONS BY BUDGET PLAN

The Board adopted as a definite policy that, except in extreme emergencies, no appropriations would be made for the use of councils, bureaus or committees until budgets had been submitted to the Board for consideration at its regular annual meeting.

GORGAS MEMORIAL INSTITUTE

A communication from Dr. Franklin H. Martin, submitting proposed amendments to the by-laws of the Gorgas Memorial Institute of Tropical and Preventive Medicine, Incorporated, whereby three officers of the American Medical Association would be made related directors of that institute, one of whom would serve as a member of its executive committee, was referred to a special committee to report at the next meeting of the Board of Trustees, to be held in November.

NATIONAL HEALTH COUNCIL

A communication from Dr. A. J. Lanza, executive secretary of the National Health Council, proposing that the American Medical Association become a member of that organization, was also referred to a special committee, which will report at the November meeting of the Board of Trustees.

REGULATIONS UNDER VOLSTEAD ACT

A committee provided for in resolutions adopted by the House of Delegates, whose duty shall be to draft regulations under the Volstead Act to be submitted to the Prohibition Commissioner and to the Commissioner of Internal Revenue, was selected as follows: Dr. W. H. Mayer, Pittsburgh; Dr. Alexander Lambert, New York, and Dr. Paul D. White, Boston.

---

[1] Bull. New York State Department of Labor, 1925.

Health Association, the Minnesota State Medical Association and the *Northwestern Health Journal*. In addition to offices for these organizations, there is a health library and reading room. The president of the association is Dr. Henry Longstreet Taylor, St. Paul; vice president, Dr. Naboth O. Pearce, Minneapolis. Thus far this year, clinics have been conducted in 119 towns and forty counties. The association is a volunteer organization, financed by the sale of Christmas seals.

MISSOURI

Personal.—Dr. Frank E. Dexheimer, Columbia, has been appointed on the resident staff of the Parker Memorial Hospital at the University of Missouri.——Dr. James Stewart, St. Louis, secretary of the state board of health, addressed the Howell County Medical Society at West Plains, August 29, and attended a banquet at the Hotel Arcade given by the society.

Society News.—The Kansas City Eye, Ear, Nose and Throat Society meets at the Baltimore Hotel in the evening on the third Thursday of each month from September to May; the afternoons of the third Thursday in November, January and March are given over to clinical work. Dr. James W. May is president and Dr. Ambrose E. Eubank is secretary.——At a meeting of the St. Louis Medical Society, St. Louis, September 15, Dr. Leland B. Alford gave an address on "A Theory as to the Cause of Mental Disorder," and Dr. Reinhard E. Wobus, St. Louis, on "The Pathology and Treatment of Chronic Endocervicitis (Lantern Slide Demonstration)."

Dr. Waite's Report on Medical Education and Licensure.—Dr. Frederick C. Waite, Cleveland, who since October, 1923, has been assisting the Missouri State Board of Health in an investigation of medical education and licensure in Missouri, has submitted a report. He presents a classification of Missouri medical schools made following inspections by members of the state board of health. The board found that only the schools of medicine of the University of Missouri, St. Louis University and of Washington University could be considered "reputable" under the Missouri law. These inspections were made always by at least four members of the board and were "careful, painstaking, complete and impartial." Dr. Waite points out that Dr. Cortez F. Enloe, who was then secretary of the state board of health and its full-time administrative officer, was the only member who did not participate in any of these inspections. Every other member through such participation was able to see and learn at first-hand the conditions in at least two of the six medical schools of the state. Dr. Waite noted that graduates of some of the most notoriously poor medical schools within and outside the state had been licensed in recent years in Missouri, some of whom entered by "the backdoor of special examinations."

In studying conditions in the office of the secretary of the board, it was found that the number of licenses issued in Missouri in its forty years of licensure was in the 191,000's, which obviously was wrong. By consulting stubs of license books, Dr. Waite found that the license issued after No. 19,199 was numbered 191,200 instead of 19,200 and that for more than a year licenses had been numbered in the 191,000's without anyone in the secretary's office appreciating the absurdity. The error was corrected but even then the number did not represent the actual number of licenses issued, as it was found later that two or three times in the history of licensure one hundred numbers had been omitted and there were numerous instances where the same number had been given to two licenses. The exact number of licenses issued now can be quickly ascertained from the records. Dr. Waite considers that there has been an "extraordinarily marked improvement" in the last eight months under the new secretary of the board and that it has been accomplished after much hard work on the part of the board's present officers. Dr. Waite proposed to include much statistical matter in this report but it seems best now, he said, to report at once. The statistics were delayed on account of insufficient assistance and the magnitude of the work. It was the intention to determine, among other things, what had become of each of the 13,000 or 14,000 physicians who are not now in Missouri but who were at some time licensed in the state. How many have died, moved elsewhere, or ceased to practice, no one seems to know. The total number of physicians reported now by local registrars and others was about 6,000. Dr. Waite was requested to assist the board in investigating about sixty complaints filed in February, 1925, alleging that the licentiates named had secured their licenses through fraud. These licentiates were cited to appear for a hearing before the board as soon as investigations were completed, and twenty-four of the hearings had been held and decisions rendered at the time of this report. It was found in some cases that the allegations were unwarranted and the cases were dismissed. All of the members of the board sat in several hearings on these complaints with the single exception of Dr. Enloe, who was "present for a few moments on one or two occasions." The complete report is published in the *Journal of the Missouri State Medical Association*.

NEBRASKA

Dinner to Veteran Members.—The Omaha-Douglas County Medical Society, whose membership the secretary writes amounts to 347, will give a dinner at the University Club, September 29, in honor of twenty-five physicians who have been practicing in Omaha more than forty years; twenty-five new members will then be introduced to the society. On October 13 (or October 6) Dr. John O. Polak, Brooklyn, will speak on "Toxemias of Pregnancy"; October 27, Dr. Henry B. Lemere on "Adenoids," and Dr. Floyd S. Clarke on "Benefit Derived from Our Knowledge of Rickets"; November 10, Dr. Edwin Davis, "Perineal Prostatectomy," and Dr. Charles C. Tomlinson, "Ringworm"; November 24 (at the South Laboratory, University of Nebraska Medical School, Forty-Second Street and Dewey Avenue), "Demonstration of Heart Cases by Means of Stethophone and Electrocardiograph"; December 8 will be the annual meeting and election of officers, at which a film, prepared under the direction of Dr. Lewis G. Cole, New York, demonstrating "Gastric Motor Phenomena," will be exhibited.

NEVADA

State Medical Election.—At the annual meeting of the Nevada State Medical Association, Elko, September 4-6, Dr. Arthur J. Hood, Elko, was elected president; Drs. William L. Samuels, Reno, and Claudius W. West, Reno, vice presidents, and Dr. Horace J. Brown, Reno, secretary-treasurer. The 1926 meeting will be at Reno.

New York City

Personal.—Henry J. Fischer has been elected president of the United Hospital Fund to succeed William F. Morgan, resigned, who is now honorary president of the fund.

Hospital News.—The board of directors of the Wyckoff Heights Hospital Society of Brooklyn met, September 14, to discuss plans for a $500,000 additional wing to the hospital.——The cornerstone of the new Home for Nurses and Training School of the Brownsville and East New York Hospital at Rockaway Parkway and Avenue A, Brooklyn, was laid, September 13.——Contracts have been made for the construction of fifteen new buildings for the Brooklyn State Hospital to be located at Creedmoor and costing $4,069,847.

Society News.—The fall meetings of the New York Electrotherapeutic Society on the first Wednesdays of each month, begin, October 7, at the New York Academy of Medicine. Each alternate meeting will be at the City Club of New York, preceded by an informal dinner for members and guests. At the October meeting Dr. Norman E. Titus will give a report of the recent International Congress of Radiology and Electrology and Dr. Richard Kovacs a report on the recent annual meeting of the American Electrotherapeutic Association.

Harmless Organisms in City Water.—The department of water supply announced, September 9, that the unusual taste of the drinking water in parts of the city for several days had been caused by the presence of the harmless organisms —asterionella and dinobryon. The deputy chief engineer said that in order to kill the asterionella 0.18 of one part of copper sulphate to 1,000,000 parts of water had been added. The water is now being treated, it was said, in parts of Harlem, Washington Heights, Marble Hill, Fort George and South and East Bronx.

NORTH CAROLINA

Change of Date and Place of Meeting.—The secretary of the Medical Society of the State of North Carolina writes that the next annual meeting of the society will be at Wrightsville Beach, June 14-16.

Personal.—Dr. Hubert A. Royster, Raleigh, ex-president, North Carolina State Medical Society, addressed physicians and members of the Rotary Club at Henderson, September 8, on "Modern Health Tendencies and Opportunities."

Committee of Dentists.—Henry O. Lineberger, president, North Carolina State Dental Society, is chairman of a committee of five dentists, comprising S. J. Betts, Hillsboro, Isaac H. Davis, Oxford, G. L. Hooper, Duke, J. H. Judd, Fayetteville, designated by the dental profession to endeavor to secure the erection and maintenance of a first-class college of dental medicine and surgery in North Carolina.

Hospital News.—The Johnston County Hospital, Inc., Smithfield, now being constructed at a cost of $70,000, will be completed not later than Jan. 1, 1926. It will be fireproof and modern in every particular and accommodate thirty-five patients. Dr. William J. B. Orr, formerly surgeon for the Atlantic Coast Line Railroad at its Rocky Mount Hospital, will be surgeon in charge, and Dr. Thel Hooks president of the hospital.——Dr. J. Rufus McCracken, Waynesville, has opened a small private hospital for the care of eye, ear and throat cases.

Base Hospital Reunion.—The annual reunion of Base Hospital No. 65 (organized originally by Major John W. Long, Greensboro) was held in Winston-Salem, September 7, under the presidency of Major Jacob H. Shuford, M. R. C., Hickory; about 100 former members of the unit were present at the banquet and annual address by the president. A memorial service was held; the following members died during the last year: Major Marshall Hall Fletcher, George Prather, Clement Hanes, John Ridge, George Tyson, A. L. Self, Clyde Thomas and George Lawrence.

NORTH DAKOTA

Court Upholds State Board.—At a hearing before the district judge of Grand Forks, June 30, the action of the state board of medical examiners in revoking the license of Dr. W. R. Shortridge, Flasher, convicted, January 9, on a charge of performing an illegal operation which resulted in the death of Freda Nadler, Bismarck, was upheld.

OHIO

Personal.—Dr. Harry B. Stewart has been appointed physician to the Clark County Children's Home, to succeed the late Dr. William B. Patton.——Dr. William H. Benner, Tiffin, has been appointed jail physician for Seneca County to succeed the late Dr. C. W. B. Harbour.

Academy of Medicine of Toledo and Lucas County.—The September number of the academy's *Bulletin* is the "Service Bureau Number." The service bureau was established, August 1, in the academy's building to aid citizens of Toledo in their relations with physicians in such ways as special messages, and taxicab and telephone service; it is financed by the academy as a "humanitarian activity." In the first month there were 2,810 telephone calls, made mostly by patients to locate their physicians. The hospitals, newspapers, and civic and other organizations of Toledo are cooperating to make the service bureau a success.

Hospital News.—Headquarters have been opened by the Toledo Hospital Campaign Committee at 211 St. Clair Street for a $1,000,000 drive. At a recent dinner of the board of trustees of the Toledo Hospital, members of the staff, ladies' auxiliary and other friends, it was decided to go ahead with plans for the erection of a new Toledo Hospital which will accommodate a minimum of 250 patients and for which funds are already partly available. A site has not been selected, although several are under consideration. The diagnostic clinics of the Toledo Hospital will be held monthly as usual, beginning the second Wednesday evening in October, and will be open to all members of the Academy of Medicine.——The new wing of St. Vincent's Hospital, Toledo, comprising the departments of pediatrics, obstetrics and part of the surgical department, has been opened. It has a capacity of 110 patients.

OKLAHOMA

Hospital News.—Dr. H. Clay Manning, Cushing, has leased the Cushing Municipal Hospital for another year.——Dr. Alva J. Weedn, Duncan, is erecting a modern two story hospital of forty rooms.

Personal.—Dr. James E. Webb, Tulsa, has been appointed county physician, to succeed Dr. Lawrence C. Northrup.——Dr. Carroll M. Pounders has been elected full-time school physician of the Oklahoma City schools, to succeed Dr. Walter A. Lackey.——Dr. Fred P. Helm, formerly of Oklahoma City, has been appointed superintendent of health in Ottawa County. Dr. Helm will work in cooperation with the county health officer, Dr. W. B. Smith, devoting his time principally to medical inspection in schools, sanitary inspection and work of an educational nature.

OREGON

Hospital News.—The New Lincoln Hospital at Toledo has been completed and turned over to the Pacific Spruce Corporation, which has leased the institution for five years. The hospital has a capacity of fifty beds.

Society News.—The mayor of Medford delivered the address of welcome at the annual meeting of the Oregon State Medical Society in Medford, September 2-4, and the annual dinner to the society was given by the Jackson County Public Health Association.

PENNSYLVANIA

Society News.—The medical societies of Schuylkill, Montgomery, Bucks, Chester and Delaware counties, comprising the Third Councilor District, held a meeting at the Washington Inn, Valley Forge, September 15.

Philadelphia

Joint Distribution Committee.—At a meeting in this city, September 13, of the American Joint Distribution Committee for European Relief, Julius Rosenwald, Chicago, pledged the sum of $1,000,000 toward the campaign of the committee; another large gift to the committee's overseas work was that of $400,000 from Felix M. Warburg, New York. Among various projects undertaken by the Joint Distribution Committee is the maintenance of a Malaria Research Unit in Palestine, whose object is to demonstrate the possibility of reducing the incidence of malaria in that country at a reasonable cost.

TENNESSEE

Personal.—Dr. Franklin J. Malone, director of the Montgomery County health unit, has been appointed city health officer of Clarksville, to succeed Dr. Frank J. Runyon.

New Hospital for Memphis.—Property has been acquired at the corner of Madison and Somerville streets for the Memphis Eye, Ear, Nose and Throat Hospital, and plans are being made for the erection of a hospital there.

Typhoid Trends Upward.—The health director of Chattanooga, Dr. Charles B. Crittendon, reported, August 29, that there were twenty-two cases of typhoid in Chattanooga and that there was a tendency for the disease to spread and that no single factor had been found common to all these cases. An investigation showed, it is reported, that most of these patients contracted the disease outside the city.

UTAH

State Medical Election.—At the annual meeting of the Utah State Medical Association at Salt Lake City, September 7-12, Dr. Thomas C. Gibson, Salt Lake City, was elected president; Dr. William R. Calderwood, Salt Lake City, president-elect; Drs. Frank K. Bartlett, Ogden, Homer E. Rich, Vernal, and Lewis W. Oaks, Provo, vice presidents; Dr. Edward D. LeCompte, Salt Lake City, treasurer, and Dr. Frank B. Steele, Salt Lake City, secretary for three years.

VIRGINIA

Society News.—The Southwestern Virginia Medical Society held its annual meeting and banquet at the Mountain Lake Hotel in Giles County, August 27-28, under the presidency of Dr. Francis H. Smith, Abingdon. Among the speakers were Dr. John Shelton Horsley, Richmond, "Modern Views of Disease of the Thyroid with Reference to Hypothyroidism," and Dr. Albert H. Hoge, Bluefield, W. Va., "The Dietary Treatment of Nondiabetic Acidosis."

WASHINGTON

Personal.—Dr. Frank C. Myers, Spokane, for the last five years engaged in public health work and Indian field service, is returning to Duchesne City, Utah, to engage in private practice.

Society News.—Dr. John S. Lundy, of the department of anesthesia, Mayo Clinic, Rochester, Minn., addressed the medical section of the King County Medical Society, Seattle, September 21, on "Carbon Dioxid as an Aid in General Anesthesia."——The executive office of the King County Medical Society is now located at 260 Stimson Building, Seattle.

WISCONSIN

Personal.—Dr. Fred J. Hodges will be in charge of the department of roentgenology at the new St. Mary's Hospital, Madison. Dr. Hodges is now making a study of various roentgen-ray departments in other cities.

Refusal of Vaccination is Refusal to Work.—The assistant district attorney of Milwaukee told the judiciary committee of the county board, August 28, that the refusal of conscientious objectors to vaccination against smallpox during the recent epidemic constituted a refusal to work and that they could not draw their salaries for the time lost from work through their refusal.

CANADA

Personal.—Dr. Frederick Grant Banting, Toronto, arrived in Stockholm, Sweden, September 13, to deliver a series of lectures.

Hospital News.—The Mountain Sanatorium near Hamilton, Ont., was damaged by fire, August 25, it is reported, to the extent of about $10,000.

GENERAL

Plague Quarantine Discontinued.—According to Surgeon General Cumming, U. S. Public Health Service, the ports of Oakland and San Pedro, Calif., and New Orleans have been declared free from plague and outgoing quarantine measures have been discontinued.

Dr. Henry R. Carter Is Dead.—As The Journal goes to press, a report is received of the death of Dr. Henry R. Carter, Washington, D. C., assistant surgeon general, U. S. Public Health Service. An obituary notice will be published in the next issue of The Journal.

Personal.—During the recent session of the First International Child Welfare Congress, Geneva, Switzerland, the president, Dr. Clemens Pirquet, sent a congratulatory cablegram to Mr. Nathan Strauss, New York, concerning his great work as a pioneer in the pasteurization of milk.——W. F. Walker, Dr.P.H., formerly deputy commissioner of health of Detroit, assumed the duties of field director of the Committee on Municipal Health Department Practice of the American Public Health Association, September 8.

Immigration Drops 68 Per Cent.—The National Industrial Conference Board reported, September 7, that the new immigration law had brought about a net reduction of 68 per cent. in the number of immigrants admitted during the fiscal year ending June 30, the net number coming to the United States during the year being 201,586 as against 630,107 in the previous fiscal year. In several instances the number of persons returning to their native lands offset the number of those arriving in this country; only 6,203 Italians arrived, for instance, while 27,151 Italians returned to Italy. Emigration exceeded immigration also in the case of Greece, Hungary, Bulgaria, Lithuania, China, Japan, Portugal, Roumania and Jugo-Slavia.

American College of Radiology and Physiotherapy.—The annual meeting of the American College of Radiology and Physiotherapy will be at the Hotel LaSalle, Chicago, October 19-22, under the presidency of Dr. Curran Pope, Louisville, Ky. There will be clinics the first day at the Wesley, the American and the Cook County hospitals. The presidential address will be delivered, October 20, following the business session, and the annual college dinner will be Wednesday evening at 6:30, at which Drs. William Allen Pusey, formerly President of the American Medical Association, and David J. Davis, professor of pathology and bacteriology, University of Illinois School of Medicine, both of Chicago, will speak. Among the speakers at the sessions announced in the preliminary program are Dr. Gustave Kolischer, Chicago, "Diathermy on Medical Kidney Disease"; Dr. Roland G. Breuer, Norton, Kan., "The Radiological Diagnosis of Early Pulmonary Tuberculosis"; Dr. Edgar Mayer, Saranac Lake, N. Y., "Artificial Light Therapy in Tuberculosis"; Dr. Charles E. Stewart, Battle Creek, Mich., "Water as a Therapeutic Agent," and Dr. Warren B. Chapman, Carthage, Mo., "Diathermy in Infections."

Society News.—Dr. Jacob Diner, Fordham University, New York, was elected vice chairman of the American Pharmaceutical Association at the recent meeting in Des Moines.——At the recent meeting of the Western Psychological Association, Berkeley, Calif., Prof. Walter R. Miles, Ph.D., Stanford University, was elected president, Kate Gordon, Ph.D., Southern Branch of the University of California, vice president, and Dr. Warner Brown, University of California, secretary.——At the recent meeting of the Pacific Northwest Orthopedic Association in Portland, Dr. Edward A. Rich was elected president; Dr. Charles E. McClure, vice president, and Dr. Roger S. Anderson, secretary-treasurer. Dr. Nathaniel Allison, Boston, was the principal speaker at the banquet.——At the last meeting of the Pacific Coast Oto-Ophthalmological Society in Vancouver, B. C., under the presidency of Dr. Henry M. Cunningham, Dr. Gordon B. New, Mayo Clinic, Rochester, Minn., gave illustrated lectures on the treatment of deformities of the face and neck, malignant tumors of the nose and throat, and on unusual lesions seen first by the laryngologist; Dr. George Piness, Los Angeles, "Allergies of the Upper Respiratory Tract"; Dr. Louis H. Klemptner, Seattle, "Bezold's Mastoiditis," and Dr. Arthur C. Jones, Boise, Idaho, "Acute Ethmoiditis with Rupture into the Orbit."——The semiannual meeting of the American Association of Hospital Social Workers will be in Louisville, Ky., October 19-23. Among the speakers will be Edward A. Fitzpatrick, Ph.D., Marquette University, Milwaukee, "The Function of Hospital Social Service in Strengthening Community Relationships."

Cooperation in Oyster Control.—An extensive program is being carried on by the U. S. Public Health Service for the sanitary control of the shellfish industry at all producing and shipping centers from Cape Cod to Texas. The work is being done under a special appropriation made at the last session of Congress and is in general charge of Dr. Herman E. Hasseltine, assisted by Dr. Clifford E. Waller. A research laboratory has been established at Craney Island in the vicinity of Norfolk, Va., and a corps of sanitary engineers has been assigned to the seaboard and gulf states. The U. S. Public Health Service is cooperating with the health authorities of the states and with state epidemiologists, and, as a result of combined efforts, it is believed that in the majority of states unsanitary conditions in the oyster industry, if any exists, will be improved. The Public Health Service considers that the responsibility for the sanitary control of the shellfish industry rests chiefly on the individual states, and that the requisite coordination and uniformity of control may best be achieved by mutual agreement among the states, with the assistance and cooperation of the Public Health Service and of the Committee appointed by the Conference of February 19, 1925. Since each state has full jurisdiction within its own territory and either has or may easily provide the necessary statutes, administrative agencies, and organization for carrying on within its own area control measures which may reasonably be required, the above plan seems feasible for immediate operation. It is considered that each producing state is directly responsible for the effective regulation of all production and handling of shellfish within its confines, not only for the protection of its own citizens, but for safeguarding such of its product as goes to other states, and the producing state should recognize its responsibility for the safety of the shellfish shipped into other states by issuing a "certificate" covering the product.

In order that each state may have full information concerning measures carried out in other states, the Public Health Service has undertaken systematic surveys of the machinery and efficiency of sanitary control as actually established in each producing state, and will report thereon for the information of the authorities of other states. Such reports will include a summary of the facts, and an expression of opinion as to whether the control exercised in each producing state is actually efficient and reliable. In accordance with a cooperative agreement between the Public Health Service and the Bureau of Chemistry, the Public Health Service will furnish the Bureau of Chemistry information regarding unsanitary shucking houses and shellfish beds in order that interstate shipments may be dealt with as heretofore under the Federal Pure Food and Drugs Act. The Public Health Service does not contemplate issuing regulations for the sanitary control of shellfish other than the general provisions already included in the Interstate Quarantine Regulations. The committee appointed by the Conference of February 19, 1925, however, is now drafting a report to be submitted to the Public Health Service, which, it is understood, will make detailed recommendations relative to the measures of control which states are advised to exercise over shellfish. It is believed that the requirements will be such as may be readily met by any state which has the authority, personnel and equipment to maintain an efficient inspection and control over shellfish beds and the plants in which they are handled and packed for shipment.

Reorganization of Prohibition Districts.—In the recent reorganization under the National Prohibition Act, there has been a rearrangement of territory comprised in the various administrative units. The state is no longer the unit, and the office of federal prohibition director for each state has been abolished. Prohibition enforcement "districts" have been arbitrarily established, each with a "prohibition administrator" at its head, as shown in the following table. Applications and other communications that formerly were sent to the prohibition director of the state must now be sent to the prohibition administrator of the district within which the applicant desires to carry on business. The districts, the city in which headquarters is located, and the component states are as follows:

Dist.	Headquarters	Territory
1	Boston, Harvey Bldg........	Maine, New Hampshire, Vermont, Massachusetts, Rhode Island
2	New York, Onyx Bldg.......	Southern and Eastern Judicial Districts of New York, and Connecticut
3	Buffalo, Liberty Bldg........	Western and Northern Judicial District of New York
4	Pittsburgh, House Bldg.....	Western and Middle Judicial Districts of Pennsylvania
5	Philadelphia, Flint Bldg.....	Eastern Judicial District of Pennsylvania and New Jersey
6	Baltimore, Custom House....	Maryland, District of Columbia and Delaware
7	Roanoke, P. O. Annex......	Virginia and West Virginia
8	Charlotte, Mint Bldg.........	Georgia, South Carolina and North Carolina
9	Tampa, Franklin Bank Bldg..	Florida
10	New Orleans, Custom House.	Louisiana, Mississippi, Alabama and Arkansas
11	Louisville, P. O. Bldg.......	Kentucky and Tennessee
12	Columbus, Columbian Bldg...	Ohio and Michigan
13	Chicago, Transportation Bldg.	Illinois (except southern counties of Eastern Judicial District), Indiana, and Eastern Judicial District of Wisconsin
14	Minneapolis — until further notice	Minnesota, North Dakota and Western Judicial District of Wisconsin
15	Omaha, Omaha Nat'l Bank Bldg.	Nebraska, Iowa and South Dakota
16	St. Louis, Title Guar'ty Bldg.	Missouri, southern counties of Eastern Judicial District of Illinois and Kansas
17	Fort Worth, Farmers and Merchants Nat. Bank Bldg.	Texas and Oklahoma
18	Denver, Mercantile Bldg.....	Colorado, Utah, New Mexico
19	Helena, Veterans Bureau....	Montana, Idaho, Wyoming
20	Seattle, Thompson Bldg......	Washington, Oregon, Alaska
21	San Francisco, Federal Bldg.	Northern Judicial District of California and Nevada
22	Los Angeles, Transportation Bldg.	Southern Judicial District of California and Arizona
23	Honolulu, Federal Bldg.....	Territory of Hawaii
24	San Juan, P. O. Bldg.......	Porto Rico

LATIN AMERICA

Rest for Working Mothers.—Chile recently passed a law which provides that every working mother must have a period of rest of forty days before and twenty days after childbirth, and that her position be held for her during this period. The law requires also that factories provide nurseries for the babies of working mothers and that free periods during the day must be granted for mothers to nurse their children.

Personal.—The gold medal of the Alvarenga prize has been given by the Academia de Medicina at Rio de Janeiro to Dr. Americo Valerio for his research on sciatica.——Prof. G. Fichera of Pavia is lecturing at Buenos Aires on the various aspects of cancer, as invited by the medical faculty.——Prof. P. Duval of Paris is delivering a course on surgery there, at the invitation of the dean of the medical faculty.——Prof. G. Bertrand of the Pasteur Institute, Paris, was invited by the Instituto de la Universidad de Paris, at Buenos Aires, to deliver a course of lectures on biochemistry, with especial regard to agriculture.——The *Semana Médica* states that Dr. E. Slocker, Madrid, is at present in Argentina on a special mission in regard to excusing Spanish physicians from an examination to practice in that country.——Dr. D. J. Cranwell, professor of surgery, Buenos Aires, has been appointed dean of the medical faculty for four years.——Dr. P. del Rio Hortega, Madrid, has also been lecturing at Buenos Aires, on the invitation of the medical faculty, on "Morbid Variations in the Neuroglia Cells."——The *Revista de Medicina* of Havana notes that Prof. E. Gley, Paris, was tendered a banquet by the dean of the medical faculty and others on his visit to Havana on his way to lecture in Mexico. He spoke at Havana on "The Influence of the Thyroid on Growth," and "The Origin and Action of Epinephrin." He is to deliver a series of eight lectures on his return visit.

FOREIGN

Memorial to Grassi.—The *Riforma Medica* states that the Argentine government has donated 10,000 liras to the Grassi Institute at Rome for study of parasitic diseases.

International Climatologic Congress.—The eleventh International Congress on Hydrology and Climatology is to convene at Brussels, October 10-14. Professor Gilbert of Paris and Dr. Terwange of Brussels will preside. The main topics appointed for discussion are "Mineral Waters and Climatic Treatment of Cardiovascular Affections," and "Treatment by Sulphur Mineral Waters." The secretary of the congress is Dr. Poirot-Delpech, 3 rue de la Planche, Paris.

Personal.—Dr. E. Zarate, Buenos Aires, demonstrated his method of symphysiotomy at the Tarnier maternity, Paris, on living subjects and cadavers, and described his technic at a special meeting at the Ecole Pratique.——Dr. Oller, Madrid, was the official delegate from Spain to the recent international Congress on Occupational Accidents, at Amsterdam. He spoke on "Rehabilitation of the Disabled," with moving pictures.——The Bianchi endowment fund was collected by a nation-wide subscription on Prof. L. Bianchi's recent retirement from the chair of nervous and mental diseases at Naples. The income of the fund, it is stated, will be awarded every second year for the best publication on neuropsychopathology.

Students' Number of Journal.—The *Lancet* devotes its August 29 number to medical education, giving a résumé of the teaching facilities and courses of the medical colleges and teaching hospitals of England, Ireland, Scotland and Wales and as usual the conditions for entrance and the opportunities offered in the various government services. The General Council of Medical Education and Registration of the United Kingdom, which is the registering body, consists now of thirty-eight members under the presidency of Sir Donald MacAlister, all but eleven being official representatives of some corporate body; six of the members are elected by the medical profession as direct representatives and five are chosen by the crown.

Resolutions of Congress of Radiology.—The first International Congress of Radiology, which met in London in July, elected at the close of the congress Dr. Gösta Forssell, Stockholm, president, and passed resolutions that the next congress shall be held in Stockholm in 1928, and that further international congresses shall be held at intervals of three years; that any country having a radiologic society or societies shall be entitled to send not more than five official delegates to each congress, but that each country shall exercise only one vote, and that the country in which any congress is held shall be entirely responsible for all the arrangements of the congress, financial and otherwise, and that a sum of money not exceeding £20 shall be allotted to the secretary of delegates from the funds of each congress meeting to cover his expenses.

Deaths in Other Countries

Dr. John F. Gordon Dill, consulting physician to the Royal Sussex County Hospital, at Hove, England, August 22.——**Dr. Henry Graeme Anderson**, consulting surgeon to the Royal Air Force, surgeon to St. Mark's Hospital and author of "The Medical and Surgical Aspects of Aviation," recently in London, England, aged 41.——**Dr. O. de la Camp**, professor of clinical medicine, Freiburg, aged 54.——**Dr. Anton Bum**, instructor in physical therapy, Vienna, editor of the *Vienna Medical Press* and the *Vienna Clinic*.——**Dr. R. Cassirer**, professor of nervous and mental diseases, Berlin, aged 57.——**Dr. O. Kukula**, professor of surgery at Prague.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 5, 1925.

Annual Meeting of the British Association for the Advancement of Science

The British Association for the Advancement of Science holds a meeting every year at which recent advances in all branches of science are described by the most eminent men of the day, and then follow discussions In the Sections of Physiology, Psychology and Anthropology many of the papers are of especial interest to physicians.

EVERY ONE A GENIUS AT SOMETHING

Dr. Spearman, Grote professor of mind in the University of London, occupied his presidential address to the Section of Psychology with an account of a curious, though still controverted, conclusion as to the nature of the human mind, drawn from the results of ability tests Psychologists examine the respective abilities of different classes of the community, especially school children of various grades, university students, candidates for appointments, and abnormal persons, by submitting them to a series of tests and marking and codifying the results The tests have been devised so as to be an indication of capacity rather than of knowledge, and to include a number of distinct bodily and mental factors. In its simplest form, the new theorem, Spearman said, is that every different ability of any person can be resolved into two factors, of which the one is always the same, but the other always independent Suppose, for example, that any person undergoes a mental test and obtains seventeen marks for it The theory asserts that this can actually be divided into two parts, say eleven and six, such that (on reduction to comparable units) the eleven recurs for this person in every other test however widely different, whereas the six is each time displaced by some other number independently It is as if each person were endowed with a definite amount of mental energy, comparable in a rough metaphor to the horse-power of an engine, but capable of being applied to a number of different machines. In the arbitrary example taken, eleven would represent the horse-power efficiency of the engine or faculty employed in the particular test Accepting, then, the conclusion that an immense number of abilities vary from one individual to another almost independently of one another, what is the practical result? Let us try to get a notion how such abilities of any person must be distributed in respect of excellence By all experience, and also by statistical theory, the great bulk of his abilities will tend to be mediocre; that is to say, they will be near the general average of his class A fair number will be distinctly above this average, and a fair number below A small number will be much above; and so also below The whole frequency distribution will, in fact, have a bell-like shape similar to that which is shown by the curves of the tetrad-differences to be expected from sampling errors At the extreme ends of the distribution will lie a very small number of performances for which the person is, on the one side a genius, and on the other an idiot Every normal man, woman and child is, then, a genius at something as well as an idiot at something. It remains to discover at what, at any rate in respect of the genius This must be a most difficult matter, owing to the very fact that it occurs in only a minute proportion out of all possible abilities It certainly cannot be detected by any of the testing procedures at present in current usage. But these procedures are susceptible, Spearman believes, of vast improvement.

FISH AS A SOURCE OF INSULIN

In the Section of Physiology, J. R. R. Macleod of Canada read a paper on the carbohydrate metabolism in cold-blooded animals. He said that insulin had been of inestimable value in the treatment of diabetes. It had not only prolonged life but had also greatly improved the efficiency and comfort of the patients. Its discovery had not, however, revealed the cause of the disease. Insulin showed what prevented diabetes, but we still had to find out why diabetes occurred when it was not present in the body. It furnished a key that might unlock the door to a discovery of the cause, but we did not know how the key should be turned. To expand the line of attack on this problem, the experimental station of the biologic board of Canada had made experiments on the behavior of sugar in fish. As the latter were cold blooded, the changes were much slower in the intermediate stages than they were in the case of mammals, and could be more closely followed. All fish had about the same amount of sugar in the blood as man and other mammals had, and, the amount increased under some experimental conditions. This indicated that its changes in the body must be controlled in the same way. The fish must therefore possess insulin, and it had been found that this was secreted by special glands near the gallbladder. On the other hand, the pancreas, which was the source of insulin in mammals, did not produce it. Now these special glands, or principal islets, as they were called, had the same structure as the islands of Langerhans, thus showing that it must be because of the presence of the structure in the pancreas that the gland yielded it. When the principal islets were excised, the blood sugar increased greatly, indicating that the fish was diabetic. Insulin could be prepared very easily from the principal islets, and in countries where the cleaning of fish was done on shore this should be a profitable source of supply. The difficulties of collecting islets when the fish were gutted at sea were so great as to make this an unsuitable source of supply.

THE ANTIQUITY OF MAN

Sir W Boyd Dawkins in a paper on the antiquity of man, read before the anthropologic section, dwelt on the impossibility of reckoning the age of man (*Homo sapiens*) in terms of years on the material at present available. He was dealing with "our noble selves" and not with those ancient types which, until recently, were regarded as our remote ancestors. The accurate measurement of the past, he said, was quite as impossible as the accurate measurement of the future. Beyond the Neolithic age in Europe was the Pleistocene or Paleolithic age, but archeologists had not realized the magnitude of the gap that existed between the two. In the Neolithic age the British Isles were distinct from Europe, with climate and wild animals not very dissimilar from those of the present; but toward the close of the Pleistocene age Great Britain formed part of the continent and the 100 fathom line swept from the Bay of Biscay northward round Ireland and Norway. It was at the beginning of the Pleistocene period that the highly organized representative of *Homo sapiens,* the Cromagnon man, the artistic hunter who lived in caves, made his appearance. This man was endowed just as we were, and could be studied today in the peasantry of France and northern Spain. Neanderthal man was more closely allied with the apes than with man as we know him; although he represented one of the "missing links" between the higher apes and man, he and others like him were distinct from the species *Homo.* This early type of the human family was the first to make its appearance in Europe, but he was not a direct ancestor of *Homo sapiens.* There was no evidence that *Homo sapiens* was "evoluted" in Europe. That evolution probably took place in that temperate part of Asia from which for the first time the Asiatic animals migrated to Europe. Running into hundreds of thousands of years, to date the matters connected with the incoming of man were based on the assumption that the existing forces of nature were invariable. But nature's forces were not uniform; they did not do equal work in equal time; nature had no chronometers. Therefore he was unable to accept anything in terms of years as applying to anything outside the reach of history.

The Microscopic Examination of Small Bodies

Mr. J. E. Barnard, whose work in cancer research has recently attracted much attention, lectured at the physiologic section on the microscopic examination of small bodies. Filter-passing viruses, he said, were extremely small bodies —so small that they would pass through any known porcelain filter or membrane impervious to any ordinary medium. It was unsatisfactory that there was no method of standardizing filters, but work in that direction was now in progress. During the last few months, work had been done which enabled them to see bodies rather less than one-third the size previously seen by the best microscope available. He hoped that the work on which they were now engaged would make it possible to prepare a cinema film which would show the life cycle of these small organisms. Already they were able to photograph viruses magnified 3,000 diameters in one-tenth second and to make a series of such photographs in rapid succession. Later on he hoped they would be able to photograph bodies one-twentieth micron in diameter. At present they could photograph down to one-tenth micron. Even now it would be possible to prepare a cinema film of extremely small organisms, such as the anthrax bacilli, one hundred-thousandth inch in diameter. One probable development in the near future was the use of a microscope working in a vacuum, and details of such an instrument were now being worked out by the National Institute of Medical Research. This would enable them to work with rays smaller even than the ultraviolet rays. Examining a thin layer of nutrient agar, such as was used in cancer investigation, under very high power, one saw that, instead of being spread out flat, it was really a spongy material with a number of small channels running through it. Though those channels contained fluid, they were really microscopic running streams, and it was on the banks of these streams nurtured by the fluid that the virus grew. This was another example of the fact that, in science it was the little byways that often led to success. On the screen Mr. Barnard showed lantern slides of the smallest organisms that had been photographed. "We believe we are showing you that virus associated with malignant human tumor growth." One trouble was that these small organisms disintegrated quickly under the influence of the ultraviolet rays. They were now seeking a wave length that would not have that effect. The virus of cancer was the first filtrable virus that had yet been identified. There were a host of others not yet identified, including smallpox, scarlet fever, measles and whooping cough.

Postgraduate Medical Education

The minister of health has appointed a committee to draw up a practicable scheme of postgraduate medical education centered in London. The chairman of the committee is the minister of health. Among the members are Lord Dawson of Penn, physician to the London Hospital; Sir Humphry Rolleston, president of the Royal College of Physicians; Sir John Bland-Sutton, president of the Royal College of Surgeons; Sir Thomas Horder; Sir George Newman, chief medical officer of the ministry of health, and Sir George Blacker, gynecologist.

PARIS

(From Our Regular Correspondent)

Aug. 29, 1925.

The Etiology of Cancer and the Researches of Dr. Gye and J. E. Barnard

The sensation caused by Dr. Gye and J. E. Barnard has subsided. It is now time for the students of cancer to express their opinions. In a recent number of the *Presse médicale*, Professor Roussy analyzes the researches carried out by the English authors. He holds that the cause of Peyton Rous sarcoma may be an agent that can be seen, cultivated and photographed, and he expects the findings of Gye and Barnard to be confirmed; but he thinks that in their experiments on transmission of mouse sarcoma by means of a filtrate and an extract free from tumor cells the authors have not taken the possibilities of error sufficiently into account. As for the existence, in the ground filtrate, of the Peyton Rous sarcoma and in the fluid of the primary culture, of two factors, different in essence and nature, Professor Roussy is skeptical. He questions whether the virus is killed by the chloroform, as the authors assume without convincing demonstration.

The most important objection that Professor Roussy raises is: Never has an experimental argument been found tending to prove that epitheliomas are of bacterial origin. Furthermore, epitheliomas can be produced by repeated irritation; for example, painting with tar. Then, again, histology isolates frankly epithelial tumors from inflammatory processes. But it is sometimes very difficult to differentiate histologically between a sarcoma and an inflammatory lesion. Among other affections, Hodgkin's disease, of which the infectious origin seems fairly well established, has long been regarded as a sarcoma. Finally, there are the experiments with the Peyton Rous sarcoma.

The English authors were able to transmit only sarcoma; to be sure—and that is the incomprehensible part—by injecting the filtrate of an epithelioma.

While recognizing the interest of the discoveries of Dr. Gye and J. E. Barnard if they should be confirmed, Professor Roussy holds that they apply only to sarcoma, and that for epitheliomas the problem remains unsettled.

BELGIUM

(From Our Regular Correspondent)

Aug. 20, 1925.

The Anticancer Center in Brussels

The Anticancer Center of Brussels was recently dedicated. The anticancer center has now 2 grams of radium, 0.25 gm. being reserved for scientific study and 1.75 gm. for the treatment of patients. Dr. Regaud told the assembly what could be expected of radium. The prospects opened up by radium, he stated, were very great, but it would be an abuse of confidence to allow the public to think that cancer had been vanquished. He explained the present status of anticancer treatment, and pointed out that there is one form of cancer in which surgery must confess itself almost powerless but in which radium is now effecting 24 per cent. of recoveries, and that is cancer of the tongue.

Early Treatment of Syphilis

In a series of communications presented before the Société belge de dermatologie et de syphiligraphie, at the Brussels medical convention (journées médicales), Dr. Bernard discussed the troublesome question, "Can early antisyphilitic treatment neglect with impunity the rôle of immunity?" The central nervous system particularly appears to be less protected by the process of secondary immunization. There is the old question of the present greater frequency of neurorelapses. Formerly, when the patient received a drug which did not check suddenly the growth of the spirochetes and consequently the process of immunization, neurorelapses were unknown and the accidents of the meningorelapse type did not occur. The comparative study carried out by Dr. Bernard, based on 400 cases, sixty of which could be followed in detail for from four to five years, shows that the remote results were much better for those in whom secondary immunization had become established, following which the treatment took on the nature of an adjuvant.

The International Foundation of Gynecology and Obstetrics

In connection with the international congresses of gynecology and obstetrics, which were held before the war at Geneva, Amsterdam, Rome, Leningrad and Berlin, there was established the international foundation composed of charter members and life members. This foundation had for its object the furtherance and the protection of the international congresses of gynecology and obstetrics without claiming any right to participate in their organization. It could participate in the work of all societies having the same purpose in view. The funds of that institution were to serve: (1) to pay to the various congresses of gynecology and obstetrics the dues of the charter and life members still living at the time of the holding of the several congresses, and (2) to establish a prize to be awarded at each congress to the author of a scientific work on some subject in gynecology or obstetrics and published since the holding of the previous congress. On that basis, the first prize was awarded at Berlin in 1912.

By an official act, the powers of that foundation have been transferred to the Société belge de gynécologie et d'obstétrique, whose duty it will be to administer the funds of the foundation.

The Successors of Professor Depage

The University of Brussels Faculty of Medicine has appointed the successors of Professor Depage. Professor Verhoogen will occupy the chair of clinical surgery. The second surgical clinic has been entrusted to Prof. Robert Danis. Dr. Albert Hustin is put in charge of the course in general and special surgical pathology. The selection of those eminent surgeons will be unanimously approved by the medical body.

Surgical Septicemia

At a recent meeting of the Société belge de chirurgie, Dr. Govaerts gave a complete presentation of the present knowledge on surgical septicemia from the bacteriologic, clinical and practical point of view. Experimental pathology has established the existence of stable micro-organisms that develop unhindered in the blood. It tells us also of unstable micro-organisms eliminated very rapidly from the blood but which may reappear there in the form of secondary septicemia. What is the mechanism of such reappearance? The author recalled and discussed the various theories advanced: saturation of the means of defense, augmentation of the resistance of the germs, initial elimination under the influence of an "effect of foreign proteins," the constant introduction of micro-organisms through infected tissues. The last interpretation is the one the author favors, but he regards the transmission of intraleukocytic micro-organisms as possible. In the vast majority of cases, surgical septicemia is caused by unstable micro-organisms. He has reached the conclusion that, whenever it is possible, the infected focus should be removed or at least cleansed surgically.

Vaccinotherapy

At the special meeting of the Société belge de chirurgie, Dr. De Caestecker gave an account of the accomplishments of vaccinotherapy, which, from the practical point of view, has given manifest results, particularly in localized infections, and especially in infection of the external teguments. In affections of the bones and joints, vaccinotherapy alone has effected cures in a few cases. As a general rule, it is only an adjuvant of surgical treatment, which it may sometimes retard or of which it may limit the effect. In surgical affections of the pleura, vaccinotherapy may sometimes be employed alone but should usually be combined with surgical intervention. In abdominal affections the efficacy of vaccinotherapy has not been demonstrated as yet and it is not devoid of danger. Here surgery, more than in all other affections, maintains all its rights. In septicemic conditions, vaccinotherapy is powerless. It is of value only in slightly virulent forms of subacute type or in attenuated forms of secondary septicemia. In the present state of our knowledge, vaccinotherapy is efficacious in staphylococcal affections, but much less so in streptococcal infections.

BERLIN

(From Our Regular Correspondent)

Aug. 29, 1925.

Decline in the Birth Rate of Germany in 1924

The total number of births for Germany in 1924 was 1,311,044, which represents a birth rate of 21.1 per thousand population, the lowest rate of the last five years and only 76 per cent. of the rate for 1913. For comparison, the birth rates for 1913 and the period from 1921 to 1924 are given, the present area of Germany being taken as the basis throughout:

1913	27.7
1921	26.1
1922	23.7
1923	21.7
1924	21.1

In the fourth quarter of 1924 a slight increase of the birth rate was noted, which, if we may judge from the figures reported by the large cities for the first quarter of 1925, has been maintained throughout this year, thus far.

The highest birth rates, as usual, are reported from Upper Silesia (30.2) and East Prussia (25.2). Of other sections, only Berlin offers anything peculiar. Here the birth rate has increased 7 per cent., being 11.3, which is, however, only a little more than half of the average birth rate for the whole country. In Posen-West Prussia, Hamburg, Oldenburg and Schaumburg-Lippe, the birth rate has remained almost unchanged; in other regions there has been a decline.

The excess of births over deaths in Germany has decreased during the period from 1913 to 1921 from 12.6 to 8.2 per thousand population. For comparison, the excess for the years 1913, 1923 and 1924 is given:

1913, 12.6 per thousand population
1923, 7.1 per thousand population
1924, 8.2 per thousand population

The figures for 1913 are based on the present extent of Germany's territory. In the figures for 1923 and 1924, the Saar region is not considered.

A favorable feature for 1924 is the extremely low death rate. In view of the low birth rate, the mortality rate among persons more than 1 year old is of greater influence in determining the balance between births and deaths than is the infant mortality rate. However, with the exception of 1924, the mortality of persons more than 1 year old, since the war, has not decreased to the same extent as the birth rate, and there is no prospect of its striking and maintaining a lower level for any length of time. As usual, the excess of births over deaths was exceptionally high in 1924 in Upper Silesia (15.0) and Westphalia (13.5). In Berlin, as in 1922 and 1923, there was in 1924 an excess of deaths over births amounting to 1.5 per thousand population.

A preliminary report gives these figures for the total number of births for Bavaria:

1913	207,457
1923	177,943
1924	171,951

The excess of births over deaths in Bavaria shows considerable improvement over 1923, as does Germany as a whole. The excess for the years 1913, 1923 and 1924 is given:

1913	81,321
1923	61,417
1924	67,496

The increase in 1924 was favorably influenced by the decline in mortality, which was due mainly to lower infant mortality. This reduction in infant mortality may be ascribed partly to the decline in the birth rate and partly to the better nutrition and better care of infants as the result of public and private welfare work.

An illustration of the effect on school attendance of the decline in the birth rate is found in a report from Munich comparing the attendance in 1914 with that of 1924:

1914, 1,548 classes with 75,961 pupils
1924, 1,361 classes with 50,827 pupils

The decline in birth rate and decrease in the excess of births over deaths since 1914 are due mainly to the war. Bad economic conditions and poor housing facilities have likewise discouraged assumption of the responsibilities of the marriage relation.

In 1924, 440,071 marriages were contracted in Germany (exclusive of the Saar region), a decrease of 141,206 as compared with 1923 and of 22,673 as against 1913. The percentage of marriages to 1,000 of population in recent years is as follows:

1913	7.8
1921	11.8
1922	11.1
1923	9.4
1924	7.1

Hamburg, in which the number of new dwellings erected in 1922 and 1923 was more than three times as great proportionately as the number erected in Berlin, showed during the last two years a 27 per cent. increase of marriages over the prewar period, whereas Berlin presented a decrease of 7 per cent.

Results of the Census in Saxony

The population of Saxony in June, 1925, was 4,970,301, which denotes an increase of 163,640, or 3.4 per cent., since the last census of 1910. Changes in the relationship of the sexes may be seen by these figures:

	1910	1919	1925
No. of males	2,323,903	2,168,065	2,361,740
No. of females	2,482,758	2,495,233	2,608,561
Total	4,860,661	4,663,298	4,970,301

From 1910 to 1925, the male population increased only by 37,837, or 1.63 per cent., whereas the female population was augmented by 125,803, or 5.07 per cent.

This preliminary report shows, on June 16, 1925, 110 females to 100 males. In 1910, there were 107 and in 1919, 115 females to 100 males. Shortly after the close of the war, as a result of the war losses (about 138,000 men) and the absence in military prisons of 31,000 men, there was a high relative excess of females. This has fallen off considerably, mainly because fewer men than women have died since the war, while the number of male and female births each year has been approximately equal. Another factor in connection with the decrease of the excess of women is that, during the first years after the war the excess of male births each year was greater than in normal times. It appears also that, since 1919, the number of immigrants to Saxony has been greater than the number of emigrants, and, furthermore, that the balance thus gained favored the male population more than the female. More than half of the total population—namely, 2,635,062, or 53 per cent.—is found in towns and cities of more than 10,000 inhabitants. In other words, in the fifty most populous communes there are more persons than in the remaining 2,925 communes of Saxony.

BUDAPEST

(From Our Regular Correspondent)

Aug. 25, 1925.

Tabes, Paralysis and Syphilis

The neurologic and psychiatric clinic of Budapest University has studied the newer methods in the diagnosis and treatment of locomotor ataxia and progressive paralysis. In fact, they were the first on the continent—excepting, of course, the Vienna clinic, where the malaria treatment of paralysis originated—to make extensive inoculation of paralytic patients with malaria plasmodia. They obtained remarkable improvement in some cases and, in a few, recovery. Dr. Hugo Richter, lecturer on psychiatry, addressed the medical society on the relation of tabes and paralysis to syphilis. The address may be thus summarized:

TIME OF NERVE INVOLVEMENT

Syphilitic diseases of the nervous system usually do not occur in the early stages of infection, so that the assumption that the spirochetes settle in the nervous system at a relatively late stage of the infection seems justified. Examinations of the spinal fluid, however, lead to quite different results. Generally persons infected show a positive Wassermann reaction of the spinal fluid in the early secondary stage; in some instances even before the appearance of the general skin manifestations. Albumin and colloid reactions also bear out the fact that the spirochetes could already be present in the nervous system without this being manifested in the clinical picture. Knowledge of this early infection of the spinal fluid is significant from the point of view of prognosis of the syphilitic process. It is true, though, that not every one of the 40 per cent. of patients who displayed an early spinal fluid syphilis developed a syphilitic nervous disorder later. On the other hand, it is highly probable that the sufferers from later nervous disorders originate from this group. Therefore, if we find exaggerated or impossible the demand of some therapeutists, that antisyphilitic treatment be continued in these cases until the full clearing up of the spinal fluid, it is, at any rate, justifiable to control these subjects in greater measure neurologically.

DIAGNOSIS

As a diagnostic method, examination of the spinal fluid has not yet attained the importance it deserves. Recent progress bids fair that by its aid the various syphilitic nervous diseases may be differentiated. Therefore, we must not refrain from its application on account of the transient meningeal reactions that follow lumbar puncture. It is through spinal fluid analyses that the question of these so-called neurorelapses has been wholly cleared up. The experience that, in the course of antisyphilitic treatment, particularly since the use of arsphenamin, injury to cerebral nerves (acusticus, facialis), occurred, favored the conception that we had to deal with the injurious effects of the antisyphilitic drug and chiefly of arsphenamin. Today we know that this view was erroneous, as these injuries were merely the reactive flaring up of the local syphilitic focus. These bad effects recede on the application of energetic treatment.

DEVELOPMENT OF THE DISEASE

Most significant are the results of the latest research on the pathogenesis of tabes and paralysis. Sixty years ago, such investigators as Virchow and Leyden denied the connection of tabes and paralysis with syphilis. As with other chronic nervous disorders, here also trauma, colds, sexual and alcoholic excesses and mineral poisons were regarded as etiologic factors. The thorough clinical researches of Erb and Fournier have brought the possibility of their connection with syphilis into medical consciousness. The Wassermann reaction has definitely cleared up this question, showing that the spinal fluid of paralytic patients was positive in 100 per cent. of the cases. The discovery of the spirochetes in 1905 by Schaudinn and Hoffmann did not mean any great progress in this domain because the demonstration of spirochetes in patients suffering from tabes and paralysis was unsuccessful. It was not until 1913 that Noguchi found great masses of spirochetes in the cerebral cortex, in one fourth of the cases. Later on, other authors could exhibit spirochetes in more than 90 per cent. in the crumbled pieces of brain from persons who died in paralytic fits. Most valuable, however, were the researches of Jahnel, who established the presence of spirochetes in the cerebral cortex and also their relation to tissue changes. He has shown that the spirochetes are present in the cortex in the foci around the blood vessels, and also in the parenchyma of the brain itself. In some of Jahnel's preparations, millions of spirochetes in such foci were evidenced by small black patches, recognizable with the naked eye. The lecturer, Dr. Richter, too, has found peculiarities in the pathologicohistologic picture of tabes which differentiate it from the rest of syphilitic spinal diseases. His findings were confirmed by Jakob and Verga. Recently Dr. Otto Mayer has recognized the pathologicohistologic basis of tabetic acusticus lesions. On the ground of these findings he had to explain the pathogenesis of tabes in a way different from the hitherto accepted explanations, at the same time placing the relation of tabes with paralysis in a new light. It was shown, namely, that tabes, properly, is not a disease of the central nervous system. Every single attacking point of the tabetic affection from the opticus down to the last sacral root lies in the subarachnoid space. The content of this, the cerebrospinal fluid, connects the attacking points with one another, mediates the spread of the process from one root to another, and also to the cerebral nerves, and thereby unites the affections going on at different points into one process. The histologic changes and the discovery of spirochetes at the site of the lesion prove that we have to deal with a process dependent on spirochetal action; that it is a true syphilitic process which does not differ at all from other interstitial syphilitic processes in other parts of the body. Therefore, tabes is an extracerebral, extraspinal process, while the central nervous system (the posteria fasciculi of the spinal cord) shows secondary degeneration only. In opposition to this progressive paralysis is an intracerebral process, which, perhaps, could rather be called the spirochetosis of the cerebral cortex. The knowledge of this fact is important not only from the point of view of diagnosis, but also from that of therapeutics.

TREATMENT

Does our etiologic and pathologicohistologic knowledge enlighten us regarding the curability of tabes? Dr. Richter believes that it does. The etiologic essential of tabes is spirochetosis of the subarachnoid space. The early appearing spirochetes may settle in the spinal roots, under conditions hitherto not clear, and start a syphilitic tissue process, which, spreading to the nerves, destroys them in a progressive manner. That tabes begins from syphilitic infection of the spinal fluid is borne out by the results of spinal fluid analyses, which show that the spinal fluid may give positive reactions in many cases in which the Wassermann reaction of the blood is negative. From this fact it could be concluded that we had to direct antisyphilitic treatment, in the first place, against the spinal fluid syphilis; that is to say, to administer endolumbar treatment. We know, however, that this treatment does not prove efficacious enough either with tabes or with other syphilitic nervous disorders, because the hitherto known antisyphilitic drugs are strongly neurotropic, which in a relatively weak concentration cause toxic symptoms. We cannot employ more than 2 mg. of arsphenamin endolumbally without the risk of poisoning, while we are able to introduce into the spinal fluid much larger doses by intravenous or intramuscular treatment. Thus we can insure superiority of the latter over endolumbar administration. Those who have thus treated early cases of tabes are assured of the great improvements that follow. But advanced cases have to be treated as well. We have to be clear, however, as to what we may expect from treatment in a given case. In the most favorable cases we can hope for stoppage of the process. Those who have seen the histologic picture of a tabetic nerve root cannot hope that the destroyed nerve roots may ever function. Therefore, the cure of tabes can be expected only in early cases. It is a medical crime to neglect treatment in these cases.

Quite different is the lack of success in treating paralysis. In paralytic patients, besides 100 per cent. strongly positive spinal fluid reactions, the blood serum shows a strongly positive reaction. The spirochetes are found in the cortex in great masses such as are found in the liver of syphilitic fetuses, and the spirochetes form huge foci around the blood vessels. Besides these we generally find severe pathologic changes in other parts of the organism. And when we find that, against this powerful invasion of spirochetes, which, to a certain extent, seems accessible to antisyphilitic drugs introduced through the blood stream, antisyphilitic treatment is without avail, we must believe that in paralysis some changes have taken place in the relation of spirochetes and the organism, which sharply differentiates paralysis from other syphilitic diseases.

SPIROCHETES OF PARALYSIS

The hypotheses that deal with the relation of the paralytic organism and the spirochetes can be divided into two groups. The first group attributes the pathology to the peculiarity of the spirochetes, to a special strain of spirochete or to an involution form of the spirochete. The other group identifies paralytic spirochetes with the usual pathogenic bacteria of syphilis, but attributes the spirochete excess and the failure of treatment to biologic changes in the attacked organism, and decrease of immune bodies. Numerous data corroborate the statement that there is a special spirochete strain toward which the nervous system shows increased sensibility, the "neurotropic" spirochete. Adherents of this theory are Brosius, Morel La-Valle and Schultz, whose cases afford evidence that many individuals having acquired the infection from a common source have developed only paralysis or tabes or other syphilitic nervous diseases. A majority of noted syphilologists hold that infections originating from a common source may provoke some mild and some severe cases and that a malign case as source of infection may cause some very mild and some very severe infections. As with all diseases of microbic origin, much depends on the settling place of the microbe; and if we ask why only a certain percentage of syphilitic patients become paralytic we might also ask why only a fraction of tuberculous patients fall ill with meningitis.

For the time being we are justified in drawing the conclusion, not so much from evidence as by exclusion, that the condition of the patient decides whether or not he will develop paralysis. The failure of antisyphilitic treatment seems to indicate that in paralytic patients the protective capacity of the organism is wanting or decreased. That this factor has great importance in the development of paralysis is proved by the encouraging results from fever therapy.

FEVER THERAPY

Experience proved superior to theory here. Restless, excited paralytic patients used to incur bodily injuries, and the suppuration of these wounds caused fever. Even older psychiatrists were surprised at the amelioration of the patients' condition after the passing of the fever. Fifty years ago, researches were made to produce fever artificially. Let us recall the period of Autenrieth ointment and the "Haarseil" method, causing a phlegmon by pulling a hair through the skin of the patient. The same thought induced certain authors to administer nuclein injections, which with the concomitant fever, together with the setting in of leukocytosis, played rôles in the cure. Wagner von Jauregg of Vienna has provoked fever by the application of toxins, and in recent times has inoculated his patients with malaria, achieving notable results. It would be too early to arrive at conclusions regarding the actual value of this method, the more so as leading clinics have failed to achieve results even approaching those of Wagner von Jauregg. So much is certain, that at present fever therapy is the only therapeutic method giving appreciable results. Our fears concerning the use of this method arise from those cases ending unfavorably, in which the heart could not survive the malarial infection.

There was no disappearance of bodily symptoms, nor even their improvement. But this could not be expected because of the destruction of nerve elements, as in tabes. Judgment of the value of the malaria treatment, taking into account its risks and dangers, raises the question as to how much more it offers than other methods apt likewise to cause fever. I may mention here milk injections, which are likewise apt to cause fever in corresponding dosage. The great advantage of milk injections is that we can control the effect through the dosage and we can avert the risks of microbic methods. When fever therapy is employed, it must be combined with antisyphilitic treatment, the more so because, with the promotion of fever, we have restored that favorable *milieu* in which mercury, bismuth or arsphenamin is more likely to exert its spirochete-killing property.

Marriages

John H. Herring, Eau Claire, Mich., to Miss Vera M. Wariner of Detroit, at Benton Harbor, August 7.

James Francis Rice to Miss Grace M. Easterly, both of Buffalo, N. Y., at Watertown, August 25.

Murray Maxwell Levine, Cleveland, to Miss Dorothy Mandell Tietz of Cincinnati, June 9.

Adam Isbister Reynolds, Detroit, to Miss Olivine Ethel Apps of Brantford, Ont., July 22.

John P. Prioletti, New Castle, Pa., to Miss Ada Nerone of Youngstown, Ohio, August 6.

John H. Moore to Miss Dorothea McBride, both of Victoria, B. C., Canada, June 1.

John F. Runnels, Chicago, to Mrs. Emma Armstrong of Fort Wayne, Ind., recently.

Cecil E. Palmore to Miss Ormal Klapp, both of Paintsville, Ky., August 21.

Maximilian Morgen to Miss Yvette Gordon, both of New York, June 16.

Eli A. Miller to Miss Mayme Rosenberg, both of Denver, June 7.

Deaths

Ephraim MacDonald Ewing, Napoleonville, La.; University and Bellevue Hospital Medical College, New York, 1918; member of the Louisiana State Medical Society; formerly assistant professor of physiology at the Tulane University of Louisiana School of Medicine, New Orleans; aged 37; died, August 27, at a sanatorium in Asheville, N. C., of heart disease.

Franklin Cady Vandervort ⊕ Bloomington, Ill.; Rush Medical College, Chicago, 1881; for three years president of the McLean County Medical Society; formerly county physician and city health officer; member and at one time president of the board of education; aged 67; died, August 29, as a result of a streptococcus infection.

John I. Suby, Stoughton, Wis.; Central College of Physicians and Surgeons, Indianapolis, 1900; for six years member of the board of education; at one time city health officer; formerly member and president of the city council; aged 52; died, August 29, of carcinoma of the stomach.

Arthur Jenkins, Harlan, Ky.; University of Louisville School of Medicine, 1891; member of the Kentucky State Medical Association; aged 54; died, September 3, at St. Joseph's Hospital, Lexington, of pneumonia and heart disease.

William A. Bristol, Clayton, N. M.; Louisville (Ky.) Medical College, 1893; member of the New Mexico Medical Society; president of the Union County Medical Society; formerly county health officer; aged 65; died, August 1.

William Haughton Murray ⊕ Plainfield, N. J.; Medical Department of Columbia College, New York, 1881; on the staff of the Muhlenberg Hospital; member of the board of health; aged 67; died, September 1, of heart disease.

Arthur C. Rumery ⊕ Mason City, Neb.; University of Nebraska College of Medicine, Omaha, 1905; member of the Nebraska Academy of Ophthalmology and Oto-Laryngology; aged 46; died, August 25, of heart disease.

John Joseph Flynn ⊕ Brooklyn; Fordham University School of Medicine, New York, 1913; served in the M. C., U. S. Army, during the World War; aged 33; died, September 1, at the Plaza Hospital, New York.

Charles Basil Cowan ⊕ Seattle; University of Western Ontario Medical School, London, Ont., Canada, 1899; served in the M. C., U. S. Army, during the World War; aged 47; died, August 23, of myocarditis.

Frank E. Brigham, Salmon Falls, N. H.; Medical Department of Columbia College, New York, 1877; member of the New Hampshire Medical Society; aged 77; died, August 28, at the Hayes Hospital, Dover.

James Thomas Eidson, Coffeeville, Ala.; University of Alabama School of Medicine, Tuscaloosa, 1894; member of the Medical Association of the State of Alabama; aged 61; died, in June, of nephritis.

Delbert B. Hartinger ⊕ Middleport, Ohio; College of Physicians and Surgeons, Baltimore, 1894; Spanish-American War veteran; aged 53; died, September 1, of a bullet wound, presumably self-inflicted.

Frank B. Waits, Shreveport, La.; Memphis Hospital Medical College, 1906; member of the Louisiana State Medical Society; aged 44; died, September 2, of a bullet wound presumably self-inflicted.

Samuel Carpenter Muir, Bardstown, Ky.; University of Louisville School of Medicine, 1896; member of the Kentucky State Medical Association; aged 63; died, August 26, of heart disease.

Elisha B. Hendrix, Reedy River Factory, S. C.; Kentucky School of Medicine, Louisville, 1887; member of the South Carolina Medical Association; aged 62; died suddenly, August 30.

Horace Ellery Happel ⊕ St. Louis; Jefferson Medical College of Philadelphia, 1910; member of the Association of Surgeons of St. Louis; aged 41; died, August 31, of septicemia.

George A. Hartman ⊕ Baltimore; Washington University School of Medicine, Baltimore, 1872; on the staff of St. Agnes' Hospital; aged 74; died, September 2, of heart disease.

Eugene L. Rice, Otterville, Mo.; Eclectic Medical Institute, Cincinnati, 1881; member of the Missouri State Medical Association; also a pharmacist; aged 66; died, August 26.

Albert John Irwin, Goshen, Ind.; Chicago Medical College, 1878; member of the Indiana State Medical Association; aged 69; was drowned, August 30, in Lake Wawasee.

Charles O. Watson, Smithfield, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1897; member of the Illinois State Medical Society; aged 55; died, September 2.

Anna F. Lawrence, Louisville, Ky.; New England Female Medical College, Boston, 1873; member of the Kentucky State Medical Association; aged 72; died, September 3.

Joseph D. Maynard, Abbeville, Ga.; Atlanta Medical College, 1883; formerly member of the state legislature; aged 64; died, August 29, following a long illness.

George Louis Koch ⊕ Kansas City, Mo.; Missouri Medical College, St. Louis, 1891; aged 57; died, September 2, of injuries received in an automobile accident.

Joseph Allen Perisho, Cache, Okla.; Miami Medical College, Cincinnati, 1891; member of the Oklahoma State Medical Association; aged 62; died, August 24.

Dee Cravens McPherson, Ellsinore, Mo.; Barnes Medical College, St. Louis, 1893; aged 74; died, August 1, at Hillsboro, Texas, following a long illness.

Charles Paul Sampsell, Evanston, Ill.; Jefferson Medical College of Philadelphia, 1888; aged 68; died, August 20, of chronic nephritis and heart disease.

John P. Burke, California, Mo.; St. Louis Medical College, 1878; member of the Missouri State Medical Association; aged 67; died suddenly, August 31.

Wesley Shropshire Neal ⊕ Mercedes, Texas; University of Texas Department of Medicine, Galveston, 1899; aged 54; died, August 8, of angina pectoris.

John Louis Butsch ⊕ Buffalo, N. Y.; Johns Hopkins University Medical Department, Baltimore, 1912; aged 48; died, September 6, of pernicious anemia.

Berton Osburne Wire, Grundy, Va.; Medical College of Virginia, Richmond, 1915; aged 33; died, in August, of injuries received in an accident.

McKendrie Zadok McKibben, Wilkesville, Ohio; Ohio Medical University, Columbus, 1900; aged 53; died, August 24, following a long illness.

Perry Lewis Nichols, Savannah, Mo.; University of South Medical Department, Sewanee, Tenn., 1901; aged 62; died, August 29, of heart disease.

Valentine de Saumarez Duke, Victoria, B. C., Canada; L.P.C.S., Ireland, L.R.C.P., Ireland, L.K.Q.C.P., Ireland, 1868; aged 77; died, July 22.

Truman Auge, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1892; aged 53; died, August 30, of heart disease.

Charles Albert Bouchard, Trois Rivieres, Que.; University of Montreal Medical Faculty, 1909; aged 37; died, June 4, of heart disease.

John Alexander Williams, Omaha; St. Louis College of Physicians and Surgeons, 1884; aged 67; died, August 28, of heart disease.

Bert G. Stockman ⊕ Woodville, Wis.; University of Minnesota Medical School, Minneapolis, 1896; aged 53; died, September 1.

William Houston Shelton, Los Angeles; College of Physicians and Surgeons, Keokuk, Iowa, 1861; aged 91; died, August 23.

James T. Nance, Dallas, Texas (licensed, Texas, by the Act of 1907); aged 52; died, August 23, at a local hospital.

James William Moore ⊕ Carlisle, Ohio; Medical College of Ohio, Cincinnati, 1897; aged 67; died, August 22.

Charles Ferchland, Brooklyn; (licensed, New York, 1869); aged 77; died, August 24, at the Norwegian Hospital.

H. A. Longino, Magnolia, Ark.; Missouri Medical College, St. Louis, 1880; aged 66; died suddenly, August 28.

Charles B. Petrie, New York; Kentucky School of Medicine, Louisville, 1889; aged 62; died, September 6.

George H. Kobler, Philadelphia; Jefferson Medical College of Philadelphia, 1877; aged 74; died, August 21.

John Wesley Carter, Kansas City, Mo.; Kansas City Medical College, 1898; aged 72; died, August 27.

Charles F. Lusk, Lebo, Kan.; Rush Medical College, Chicago, 1884; aged 69; died, August 24.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

THE AMERICAN ASSOCIATION FOR MEDICO-PHYSICAL RESEARCH

Another Society Catering to the Twilight Zone of Professionalism

The American Association for Medico-Physical Research held what is claimed to be its fourteenth annual convention in Chicago Sept. 21 to 26, 1925. From this it would appear that the organization has been in existence fourteen years. Little seems to have been heard of it—at least under this name—until three years ago when, in 1922, it held what was alleged to be its tenth annual convention, also in Chicago. At that time the Albert Abrams fakery was at its zenith and no small amount of time was devoted to the "Electronic Reactions of Abrams." Various Abrams disciples appeared on the program and also the high priest of the cult himself.

The American Association for Medico-Physical Research was organized in 1911 by the outstanding quack of the century—Albert Abrams. It was originally called "The American Association for Spondylotherapy." Those who are familiar with contemporary quasi-medicine will remember that Spondylotherapy was a cult created by Abrams before he went into his so-called "Electronic Reactions" which brought him so much notoriety and allowed him to die a millionaire. Spondylotherapy was an attempt to make chiropractic and osteopathy respectable, Abrams at that time being convinced that manipulation of the spine was the shortest way to rescue the patient from suffering and the doctor from poverty. It was later that he turned the patient over and decided that the abdomen offered a more fertile field.

A study of the last four annual programs indicates that the American Association for Medico-Physical Research might be expected to sponsor every physio-therapy fad from the Abrams cult up—or down.

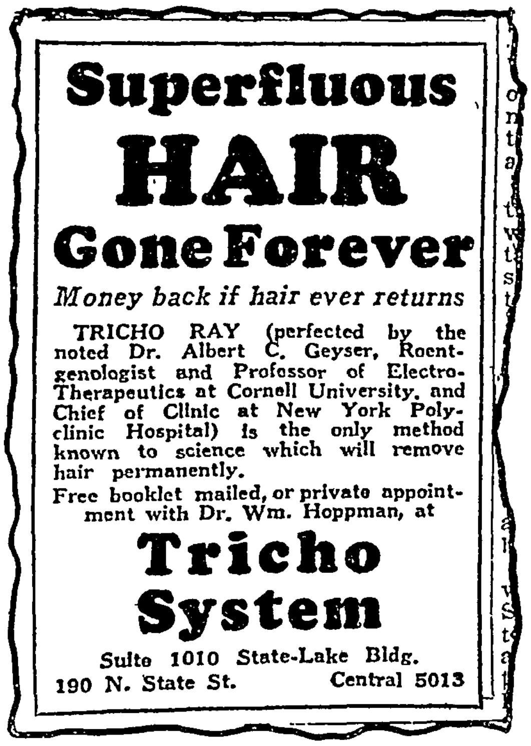
According to the "Constitution" of the organization, there are three classes of members, Fellows, Associates and Honorary Members. The qualifications for Fellowship are, according to the constitution, graduation from a recognized medical college, legal qualification to practice medicine and surgery and membership "in good standing with their local or national medical society." If the latter means the American Medical Association and its component branches, then a study of the programs and publications of this organization indicates that these alleged qualifications are to be taken only in a Pickwickian sense.

No better way of permitting physicians to evaluate the scientific status of the American Association for Medico-Physical Research can be given than to give as briefly as possible what The Journal's files show regarding certain individuals who are on the "Scientific program" for the coming meeting.

Francis A. Cave, "M.D.," D.O., Boston.—Although the program of the American Association for Medico-Physical Research gives Francis A. Cave the degree of "M.D.," our records fail to show that Cave was ever graduated by any reputable medical college or licensed as a doctor of medicine in any state in the Union. Cave has been one of the most active of Abrams' disciples and according to Abrams himself leased no fewer than fifteen "Oscilloclasts." Incidentally, Boston seems to have been a happy stamping ground for the Abrams hocus-pocus possibly because it is headquarters of the Eddyite organization. Cave's name appears as one of the honorary vice-presidents of the "Medical Liberty League," a Massachusetts organization that is devoted to anti-vivisection activities, and otherwise opposes scientific medicine. Cave seems to have received a diploma from the Massachusetts Osteopathic School in 1903 and the Massachusetts authorities state that although this school at that time graduated students with the degree of "D.O.," it had no legal right to do so. As a result, Cave is registered by the Massachusetts Board of Registration as a non-graduate.

George S. Foden, M.D., Detroit, Mich.—Dr. Foden, according to the program, is "Chairman" of the "Section on Medical Radiology." He seems to have appeared on the program of another twilight zone society that was dealt with a few years ago in this department of The Journal, the "Allied Medical Associations of America." His subject was "The Eye as an Index Factor to Personality." An article credited to him appeared in *The Journal of the Allied Medical Associations.* It was a rambling and disjointed panegyric on "The Electronic Reactions of Abrams" and was later published in one of the house organs of the Abrams cult called *Progress.* Dr. Foden is not a Member or a Fellow of the American Medical Association.

Albert C. Geyser, M.D., New York City.—According to the program, Dr. Geyser contributes a paper entitled "What I Saw in Europe This Summer." We don't know just what Dr. Geyser saw in Europe, but we know what any one who goes to New York can see regarding Dr. Geyser. Dr. Geyser, it seems, is the alleged inventor of what is known as the "Tricho System" which is being successfully pushed in a financial way by the "Tricho Sales Corporation." The Tricho System is a method of removing superfluous hair by means of the x-ray. Agents are appointed in various parts of the country and the advertising of some of these agencies is reminiscent of "patent medicine" exploitation. It is not necessary to tell physicians how serious a menace the use of the x-ray in removing superfluous hair may be. The Journal is collecting reports of cases of pre-cancerous keratoses that are developing in women who have been foolish enough to subject themselves to this method of removing superfluous hair. In due time the matter will be published. Dr. Albert C. Geyser is not a Member or a Fellow of the American Medical Association.



Superfluous
HAIR
Gone Forever
Money back if hair ever returns

TRICHO RAY (perfected by the noted Dr. Albert C. Geyser, Roentgenologist and Professor of Electro-Therapeutics at Cornell University, and Chief of Clinic at New York Polyclinic Hospital) is the only method known to science which will remove hair permanently.

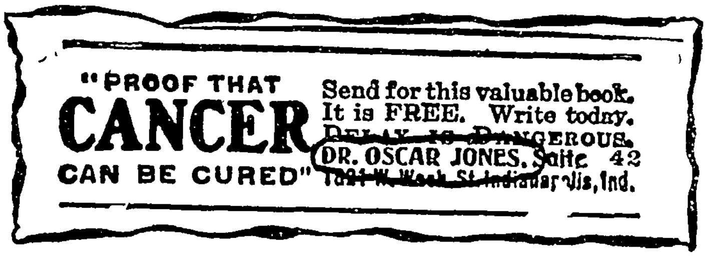
Free booklet mailed, or private appointment with Dr. Wm. Hoppman, at

Tricho System

Suite 1010 State-Lake Bldg.
190 N. State St. Central 5013

William Howard Hay, M.D., Buffalo.—Dr. Hay, it seems, is "chairman" of the "Section on Advanced Medicine." Dr. Hay will be remembered by those who read the article published in this department a few weeks ago on the "Defensive Diet League of America" as a member of the "Medical Advisory Board" of that egregious organization. He seems to have practiced in Youngsville, and Corry, Pa., going to Buffalo, apparently, early in 1921. A newspaper clipping from a Corry, Pa., paper of August, 1918, reported that the "Hay Rest Cure" operated by Dr. W. H. Hay had introduced "a special service department for the cure of hay fever cases." In 1916 a physician had written stating that Dr. Hay who was operating the Hay Rest Cure Sanitarium at Youngsville, Pa., had a "diabetic cure." The American Medical Liberty League, an organization with "patent medicine" affiliations and that is opposed to scientific medicine, publishes two articles credited to William Howard Hay and distributes them at 30 cents and 50 cents a hundred, respectively. Dr. Hay seems to have written somewhat extensively for the Defensive Diet League "bulletins," telling of his success in the treatment of various conditions by his own peculiar methods. Dr. Hay is a member of his local medical society.

Oscar Jones, M.D., Indianapolis.—Dr. Jones has for some time been a disciple of Albert Abrams and in summing up his scientific achievements, we cannot do better than repeat what we published in an article published two or three years ago dealing with the Abrams fakery. Dr. Jones for many years has been in the "cancer cure" business and has advertised "Cancer, My Cure is Guaranteed." While running his "medical non-surgical treatment of cancer" he also seems to have been connected with the "Medilation Co."—a medical, non-surgical treatment of piles, claiming to cure nine out of every ten patients that he accepted. Dr. Jones' name also appears as an officer in the "Allied Medical Associations of America." Dr. Jones is not, of course, either a Member or a Fellow of the American Medical Association.



"PROOF THAT
CANCER
CAN BE CURED"

Send for this valuable book.
It is FREE. Write today.
DELAY IS DANGEROUS.
DR. OSCAR JONES. Suite 42
[illegible] W. Wash. St. Indianapolis, Ind.

Guy Beckley Stearns, M.D., New York City.—Dr. Stearns is on the program to discuss "Boyd and His Emanometer" especially as regards the work of Boyd in relation to the selection of homeopathic remedies. Dr. Stearns was the "Chairman" of the committee of the "International Hahnemannian Association" which purported to investigate the E.R.A. As the committee was largely made up of Abrams enthusiasts or disciples its report, needless to say, was entirely favorable to the Abrams cult. The American Institute of Homeopathy, which represents the conservative and responsible members of homeopathic medicine, excoriated the report. Of course, Dr. Stearns is not a Member or a Fellow of the American Medical Association.

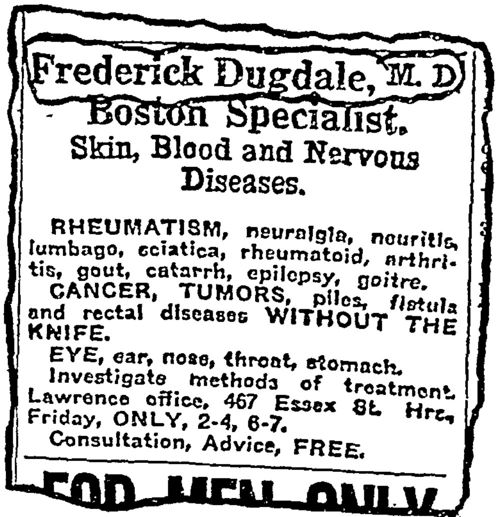
George E. Harter, Toledo, Ohio.—Mr. Harter is on the program "By invitation" to discuss "Food Selection and Combination." Mr. Harter is further described in the program as "Founder and Director of the Defensive Diet League of America." As was brought out in The Journal's article on the "League" a few weeks ago, Mr. Harter is connected with a dental supply house and is the manager of a commercial dental journal known as *The Dental Summary* published by the supply house of which Harter is part owner. His present scheme, through his "League," is that of teaching a peculiar brand of dietetics to dentists. Mr. Harter's knowledge of the science of nutrition is so vague that he seems unable to distinguish between scientific work done by such men as McCollum and the fads or quackeries expounded by Tilden of Denver, Harry Ellington Brook, the mail-order quack of Los Angeles, and C. S. Carr, another mail-order quack who was connected with the Peruna concern. According to Harter's conception of pathology, a child that is suffering from diphtheria has merely been eating wrongly and an individual who has acquired a chancre is paying the penalty of dietetic error. Table salt, according to Harter, will cause impotence, while sauerkraut will cure malaria. Harter also has the theory that "combinations of starches are bad" while "combinations of starches and proteins are as bad or worse." Further he warns that no fruit should be eaten with starches; under no circumstances should cereal foods be eaten at the morning meal. This is the gentleman who is on the program of the American Association for Medico-Physical Research to discuss diet in its relation to health and disease.

William F. Koch, M.D., Detroit, Mich.—It is entirely fitting that William F. Koch should appear in this galaxy of notables to present his interesting theory of how to cure cancer. Koch's cancer remedy has been discussed at various times in The Journal and it is unnecessary at this time to go into the matter further than to say that it has never in any sense been established as either scientific or reliable. Koch is neither a Member nor a Fellow of the American Medical Association.

A. J. Pacini, "M.D.," Chicago.—This gentleman, who is connected with a concern that sells physiotherapy apparatus, is to discuss ("By invitation") "Some Physiotherapeutic Principles." Although the program of the American Association of Medico-Physical Research gives Mr. Pacini the degree of "M.D." and, although he himself claims it, most careful search has failed to disclose that any one of this name was ever graduated by a reputable college in the U. S. or was licensed to practice medicine in any state in the Union. Repeated requests made to Mr. Pacini during the past two or three years for information regarding his alleged graduation in medicine have failed to bring any information on the point. According to information received Pacini has claimed to be graduated by the University of New York in 1905 and by the University of Tennessee in 1910 with the degrees of Ph.C. and M.D. We have been unable to verify either claim. According to the officials, A. J. Pacini was never enrolled as a student in the University of Tennessee nor graduated from that institution. He was engaged as an instructor in the University of Tennessee until it was discovered that some of his claims regarding his educational qualifications were false and his services with the University of Tennessee were severed during the middle of the school term. Pacini, in a letter to the American Medical Association regarding his graduation in medicine, claims to have been graduated under an assumed name in 1909 and he declares that he does not wish to divulge his reason for having assumed a name. He was told that the American Medical Association has not the slightest interest in why he assumed a name but it is interested in knowing what name he assumed and when and from what school he was graduated.

Mel R. Waggoner, M.D., Cedar Rapids, Iowa.—Dr. Waggoner seems to have appeared on the program of this organization for at least three consecutive years. For some time he has been going about the country giving alleged lecture courses in electrotherapy. His "lecture courses" seemed to be backed by at least two electrical apparatus concerns, that of McIntosh and H. G. Fischer. He also has "lectured" under the auspices of I. W. Long, who has sponsored courses by such individuals as Abrams, George Starr White and others of similar type. Just what special qualifications Dr. Waggoner has for teaching electrotherapeutics is not quite clear. A book that he has written on the subject, published by the McIntosh Electrical Corporation in 1923, was reviewed in The Journal Nov. 10, 1923, and was severely criticized. The review brought out that several statements in Waggoner's book under the discussion on the eye would, if true, put all text-books on diseases of the eye in the discard. Dr. Waggoner wrote of the "very good results" *that might* have been obtained "in the way of clearing up cataracts" that are "not too far advanced" by *means* of a technic which included diathermy and sinusoidal currents. In his book Dr. Waggoner also called attention to an apparatus of which he was the inventor, called the "Pelvicmultimode." The apparatus, it seemed, was designed by him so that "all of the various physical methods which have been proved of definite benefit in pelvic disease, may be combined and applied at one and the same time." With this machine and the various electrical currents it seems Dr. Waggoner treats all diseases of the pelvis and the lower abdomen; from acute anterior urethritis through chronic gonorrhea, impotence, prostatitis, nephritis and sciatica. Not only this, but, according to Waggoner, "the Pelvicmultimode has repeatedly proved to be a wonderful aid in acute and chronic Bright's disease, recovering cases which would have succumbed otherwise." One of the latest letters sent out advertising Waggoner's course is on the stationery of "The Waggoner Clinic and Lecture Course," 1664 N. Claremont Ave., Chicago. The letter purports to come "From the Office of the Secretary." Investigation proved that 1664 N. Claremont Ave. is really 2335 Wabansia Ave., the address of H. G. Fischer & Co., which sells electrical apparatus. Dr. Waggoner is a Member and a Fellow of the American Medical Association. He is on the program of the American Association for Medico-Physical Research to conduct a "Tonsil Clinic."

Frederick Dugdale, M.D., Boston.—Dr. Dugdale's present activities seem to be largely concerned with the exploitation of the Koch cancer cure. Two or three years ago, when there were large economic possibilities in Abrams' fakery, Dugdale was one of the disciples of that cult, being, according to Abrams, the lessee of an "Oscilloclast." Prior to that he long advertised as a "Specialist in Rheumatism, Cancer, Chronic Blood and Nervous Diseases." Dr. Dugdale's name also appears as "President" of the "Allied Medical Associations of America" for 1921-22 and as one of the 1919 officers of the "Medical Society of the United States," an organization founded by Ohmann-Dumesnil and Emory Lanphear, originally brought into existence to organize fee-splitters but later described as "a Society of Protest Against the Autocracy of the A. M. A." Dr. Dugdale is neither a Member nor a Fellow of the American Medical Association.



Frederick Dugdale, M. D

Boston Specialist.

Skin, Blood and Nervous Diseases.

RHEUMATISM, neuralgia, neuritis, lumbago, sciatica, rheumatoid, arthritis, gout, catarrh, epilepsy, goitre.

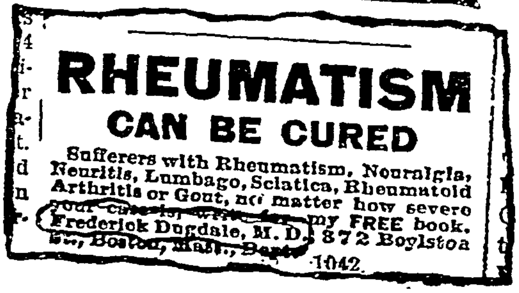
CANCER, TUMORS, piles, fistula and rectal diseases WITHOUT THE KNIFE.

EYE, ear, nose, throat, stomach.

Investigate methods of treatment. Lawrence office, 467 Essex St. Hrs., Friday, ONLY, 2-4, 6-7.

Consultation, Advice, FREE.

FOR MEN ONLY



RHEUMATISM

CAN BE CURED

Sufferers with Rheumatism, Neuralgia, Neuritis, Lumbago, Sciatica, Rheumatoid Arthritis or Gout, no matter how severe your case is, write for my FREE book. Frederick Dugdale, M. D., 872 Boylston St., Boston, Mass., Dept. 1042.

E. M. Perdue, M.D., Kansas City, Mo.—Dr. Perdue is "chairman" of the "Section on Cancer" and is to tell "How to Kill Cancerous Tumor" by "Deacquification, by Chemical Substitution, by Electro-thermal Coagulation and by Diathermy." Perdue has for some years been associated there with O. A. Johnson, who as a cancer cure quack, got into trouble with the federal authorities some years ago, at which time a quietus was put on his mail-order cancer cure. Perdue's name used to appear in the "catalog" of a low-grade medical school that ran for some years in Kansas City known as the Eclectic Medical University. It went out of existence in 1918. Practically every state in the Union refused to recognize the school or to admit its graduates to their examinations. On the "faculty list" Perdue's name appeared as a "Professor of Anatomy" and also as a "Professor of Chemistry and Physiology" to say nothing of "Professor of Preventive Medicine." Perdue's name has appeared on the program of the "American Association of Progressive Medicine" which was operated by such individuals as Simon Louis Katzoff, R. Swinburne Clymer, Orin W. Joslin, George Starr White and others of a similar stripe. Of course, Perdue is not a Member or a Fellow of the American Medical Association. Moreover Perdue is not even licensed to practice medicine in Missouri.

Charles Elton Blanchard, M.D., Youngstown, Ohio.—Dr. Blanchard appears on the program as the one who is to give an "Ambulatory Proctology Clinic." Some months ago physicians were being circularized and urged to purchase "An Epitome of Ambulant Proctology" by Charles Elton Blanchard. The circular also notified the profession that a new society had been brought into being known as "The American Academy of Ambulant Proctology" of which C. E. Blanchard was secretary-treasurer and J. B. Albright, the advertising "rectal specialist" of Philadelphia, its president. C. Elton Blanchard also seems to be the corresponding secretary of the "American Association of Independent Physicians." This organization is, apparently, the creature of one Leonard L. Landis who runs a "medical institute" in New York City and puts out a book urging physicians to advertise. Dr. Blanchard is neither a Member nor a Fellow of the American Medical Association.

These are just some of the individuals whose names appear on the program of the American Association for Medico-Physical Research meeting in Chicago September 21-26, 1925. There are also on the program several others in the same class, but the limitations of space make it impossible at this time to take up these names for individual consideration. From what has been published, however, it should not be difficult to judge the probable scientific status of the American Association for Medico-Physical Research.

Correspondence

"GLYCEROL—A SUGAR FORMER"

To the Editor:—In the issue of September 12 appears a current comment on glycerol. The point is well taken, without doubt, especially since one Baltimore newspaper and a national press bureau widely heralded glycerin as a "cure" for diabetes about a year ago. Doubtless many patients took this newspaper authority as license to use glycerol ad libitum as an addition to the diet. Probably many physicians have likewise used glycerin without a full understanding of its relationship to carbohydrate metabolism.

Beginning in 1922, with Dr. R. R. Hannon, I experimented with glycerol as a substitute for carbohydrate. It was known that glycerol was a sugar former and that it was antiketogenic. It seemed possible that to a certain extent glycerol could be oxidized as such, that is, without conversion into glucose, and that it might exert its antiketogenic effect without being so converted. Cremer had found that glycerol given to phlorhizinized dogs was only partially converted into glucose and excreted as such. Lusk quoted Verzár, showing that in incomplete diabetes the power to oxidize three-carbon compounds is retained longer than the ability to utilize hexoses.

Encouraged by these considerations, we carried out experiments on patients, with most gratifying results in some cases. One instance was reported before the American Society for Clinical Investigation in 1923, a patient with severe diabetic acidosis and bronchopneumonia. The carbon dioxid combining power was 12 per cent. by volume. This was before the advent of insulin. On a diet consisting of cream and glycerin sufficient to furnish his basal requirement of calories and balanced as to ketogenic and antiketogenic materials, this patient recovered from the acidosis and ultimately from the pneumonia. In another paper (McCann, Hannon, Perlzweig and Tompkins: *Arch. Int. Med.* **32**:226-258 [Aug.] 1923), one or two other cases were referred to, but no comprehensive report was made, owing to the shift of interest to insulin.

The innocent cause of the newspaper splurge was a paper by Dr. H. M. Thomas, Jr., who reported some cases in which the substitution of glycerol for carbohydrate proved to be a useful maneuver (Thomas: *Bull. Johns Hopkins Hosp.* **35**:201 [July] 1924).

I am convinced that in many cases one may withdraw carbohydrate from the diet of patients with acidosis and replace it with glycerol to the extent of two to two and one-half times the weight of the carbohydrate withdrawn, with beneficial effects from the additional antiketogenic substance, without an increase in blood sugar or glycosuria.

Recent work from Lusk's laboratory (Chambers and Deuel: *J. Biol. Chem.* **65**:21 [Aug.] 1925) has shown that, in complete phlorhizin diabetes, glycerol is completely convertible into glucose in some, though not all, the experimental animals. The glycerol not converted was found not to be oxidized in phlorhizinized animals. It should be remembered that phlorhizin diabetes is not the same thing as pancreatic diabetes.

Our clinical observations may possibly be explained by Verzár's work. An analogous case is that of dihydroxyacetone. This substance is also a sugar former, but Rabinowitch (*J. Biol. Chem.* **65**:55 [Aug.] 1925) reports that it is better tolerated than glucose in severe diabetes and that it produces less effect on the blood sugar level than its equivalent of glucose.

William S. McCann, M.D., Rochester, N. Y.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

CLIMATOTHERAPY FOR ASTHMA

To the Editor:—I have a bad case of bronchial asthma in a patient, aged 40, whom I have given all possible treatment here without much result. I have advised him to go West to a warm, dry and equal climate. I suggested Arizona, Texas or southern California. I thought that Colorado, Montana or Wyoming, or that country might be objectionable because of risk to the heart from altitude. Please tell me your idea and give information concerning sanatoriums or locations. If you should print this in The Journal, please omit my name. M.D., Iowa.

Answer.—Climatotherapy in bronchial asthma is, at best, an experiment, and an expensive one at that. Exhaustive sensitization tests and immunization therapy are likely to prove a better investment in most cases.

Whether any one climate will cure the patient or not depends on whether it offers him freedom from the causative factor. Obviously, it is most especially the seasonal cases that are susceptible to benefit from change of climate. Thus, the patient with hay asthma will be free from suffering in any climate where the causative pollen does not exist. High altitudes and the ocean offer general freedom from pollens; but the patient hypersensitive to ragweed, for instance, will be comfortable anywhere else, provided there is no ragweed pollen. A person suffering from asthmatic bronchitis during inclement weather may be free from his affliction if he spends the seasons of such weather in the south.

The patient with nonseasonal asthma may also be benefited by change of climate, provided it frees the patient from his noxa. For example, a person susceptible to animal emanations will be cured by living wherever the particular animal to which he is susceptible does not exist. In nonseasonal asthmatic bronchitis, climatic improvement of the bronchitis and with it of the asthma may at times be secured by modification of expectoration. If the expectoration is scanty, the humid atmosphere of a warm seacoast is likely to agree best; while, for patients with profuse expectoration, dry climate is indicated, such as that of Arizona. Patients with emphysema do not tolerate high altitudes; but, unless the emphysema and accompanying heart weakness are of a high degree, and if the patient does not have to exert himself a great deal, moderate elevation is not objectionable.

It will be plain from what has just been said that there is no one sanatorium or location likely to be suitable for more than a limited proportion of asthmatic patients.

IMMUNIZATION AGAINST SCARLET FEVER

To the Editor:—What is the general opinion regarding immunization against scarlet fever by three doses of streptotoxin? Last spring I tested about 125 children and gave them the positives, three doses of toxin obtained from the laboratory of the New York City board of health. I expect this fall to retest most of the group. There seems to be considerable difference of opinion on this subject, and I should appreciate learning what conclusions you have arrived at.

H. G. Bull, M.D., Ithaca, N. Y.

Answer.—Probably the best answer to this question at the present time is contained in the following quotation from an article by George F. Dick and Gladys Henry Dick on the results of the skin test for susceptibility to scarlet fever and the preventive immunization with scarlet fever streptococcus toxin (The Journal, May 16, 1925, p. 1477): "The New York City Health Department has employed scarlet fever toxin in preventive immunization on a large scale but has given it in doses too small completely to immunize the majority of susceptible persons. Zingher (The Dick Test in Normal Persons and in Acute and Convalescent Scarlet Fever Cases, The Journal, Aug. 9, 1924, p. 432) reported the use of 100, 250 and 500 skin test doses, a total of 850 skin test doses. Toxin put up in this inadequate dosage has been widely distributed by commercial firms." In Table 2 of their article the Dicks show that the percentage of complete immunization as determined by a negative skin test steadily increases with the amount of toxin injected as expressed in skin test doses. When from 1,000 to 2,000 skin test doses were injected, only 14.3 per cent. were completely immunized; when from 5,000 to 6,000 skin test doses were injected, 66 per cent. were completely immunized; and when from 10,000 to 12,500 skin test doses were injected, 91.8 per cent. were completely immunized. Obviously, the thing to do is to inject enough toxin properly spaced to induce a degree of immunity that will give a negative skin test. For this purpose five doses undoubtedly are better than three. To quote again from the Dicks: "The size of the first immunizing dose is important. It should be small enough to avoid severe reactions, yet sufficiently large to stimulate the production of antitoxin so that a larger amount of toxin may be given for the second dose. No dose should be out of proportion to the one that preceded it. A first dose of 500 skin test doses and a second of 1,500 skin test doses, and considerably larger third doses have been employed . . . without any undesirable reactions." At present the best experience appears to indicate the following skin test doses at intervals of from five to seven days: 500, 1,500, 5,000, 15,000, 20,000. About two weeks after the last injection, a skin test should be made to determine whether immunization is complete.

THE U. S. PHARMACOPEIA

To the Editor:—In the discussion of the forthcoming Pharmacopeia which appeared recently in the columns of The Journal. I find no mention made where it is published and at what price. This information would be appreciated.

N. T. N. H., M.D., Michigan.

Answer.—The Board of Trustees of the U. S. Pharmacopeial Convention awarded the contract for publishing the United States Pharmacopeia X to the J. B. Lippincott Company, Washington Square Press, Philadelphia. The price of the United States Pharmacopeia X, buckram bound, is $4.

TETANUS ANTITOXIN

To the Editor:—For what length of time does a prophylactic dose (1,500 units) of tetanus antitoxin protect a person? I have treated a number of puncture wounds and have given the patients a dose of tetanus antitoxin. In two or three weeks many of the patients would have another similar wound. In no case did I *repeat* the antitoxin, but I am wondering what the time limit on the protection from the antitoxin is in such cases.

T. K. H., Indiana.

Answer.—To insure protection in cases of severe injury, it is usually advised to give a second injection of antitoxin ten days after the primary one, since the antitoxin is gradually eliminated and little of it remains after ten days.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

American Board of Otolaryngology: Chicago, Oct. 19. Sec., Dr. H. W. Loeb, 1402 South Grand Blvd., St. Louis, Mo.

Arizona: Phoenix, Oct. 6-7. Sec., Dr. W. O. Sweek, 404 Heard Bldg., Phoenix.

California: Sacramento, Oct. 19-22. Sec., Dr. Charles B. Pinkham, 906 Forum Bldg., Sacramento.

Colorado: Denver, Oct. 6. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

District of Columbia: Washington, Oct. 13. Sec., Dr. Edgar P. Copeland, Stoneleigh Court, Washington.

Florida: Tallahassee, Oct. 13-14. Sec., Dr. W. M. Rowlett, Citizens Bank Building, Tampa.

Georgia: Atlanta, Oct. 13-15. Sec., Dr. C. T. Nolan, Marietta.

Hawaii: Honolulu, Oct. 12-15. Sec., Dr. Guy C. Milnor, 401 Beretania St., Honolulu.

Idaho: Boise, Oct. 6. Commissioner of Law Enforcement, Mr. F. A. Je er, Boise.

Illinois: Chicago, Oct. 6-8. Director, Mr. A. M. Shelton, Capitol Bldg., Springfield.

Iowa: Des Moines, Oct. 14-16. Dir. of Examinations and Licenses, Mr. H. W. Grefe, Des Moines.

Kansas: Topeka, Oct. 13. Sec., Dr. Albert S. Ross, Sabetha.

Michigan: Lansing, Oct. 13-15. Sec., Dr. Guy L. Connor, 707 Stroh Bldg., Detroit.

Minnesota: Minneapolis, Oct. 6-8. Sec., Dr. Thomas S. McDavitt, Lowry Bldg., St. Paul.

Missouri: Kansas City, Oct. 27-30. Sec., Dr. James Stewart, Jefferson City.

Montana: Helena, Oct. 6. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

National Board of Medical Examiners: Part III, Baltimore, Oct. 15. All applications for this examination must be made on or before Oct. 1. Sec., Dr. J. S. Rodman, 1600 Walnut St., *Philadelphia.*

Nevada: Carson City, Nov. 2. Sec., Dr. Simeon L. Lee, Carson City.

New Jersey: Trenton, Oct. 20-21. Sec., Dr. Alex. Macalister, Trenton Trust Bldg., Trenton.

New Mexico: Santa Fe, Oct. 12-13. Sec., Dr. W. T. Joyner, Roswell.

New York: Albany, Buffalo, New York City and Syracuse, Sept. 21-24. Chief, Education Dept., Mr. Herbert J. *Hamilton, Albany.*

Rhode Island: Providence, Oct. 1. Sec., Dr. Byron U. Richards, State House, Providence.

Utah: Salt Lake City, Oct. 6. Director of Regis., Mr. J. T. Hammond, 412 State Capitol Bldg., Salt Lake City.

West Virginia: Charleston, Oct. 13. Sec., Dr. W. T. Henshaw, Charleston.

Wyoming: Cheyenne, Oct. 5-7. Sec., Dr. G. M. Anderson, State Capitol, Cheyenne.

Arkansas May Examination

Dr. J. W. Walker, secretary of the Arkansas Board of Medical Examiners, reports the written examination held at Little Rock, May 12-13, 1925. The examination covered 12 subjects and included 120 questions. An average of 75 per cent. was required to pass. Twenty-three candidates were examined, all of whom passed. Twelve candidates were licensed by reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
University of Arkansas School of Medicine	(1925)	76.3, 76.4, 79.8, 80.1, 80.5, 81.5, 81.5, 82.5, 82.7, 82.9, 83.2, 84, 84.3, 86.1, 86.4, 87.4
Tulane University	(1909)	82
Memphis Hosp. Med. Coll....(1896) 78.3, (1903) 77.7,	(1900)	78
University of Tennessee Coll. of Med.....(1924) 78.3,	(1925)	75.7
Vanderbilt University School of Medicine	(1901)	79.4

College	Year Grad.	Reciprocity with
LICENSED BY RECIPROCITY		
University of Arkansas School of Medicine	(1911)	Oklahoma
American Medical Missionary College	(1904)	Ohio
Chicago College of Medicine and Surgery	(1909)	Mississippi
University of Louisville	(1910)	Kentucky
Tulane University	(1922)	Louisiana
Johns Hopkins University	(1921)	Maryland
University and Bellevue Hospital Medical College	(1922)	Mississippi
University of Oklahoma	(1923)	Oklahoma
University of Pennsylvania	(1922)	Mississippi
Meharry Medical College	(1921)	Tennessee
University of the South Medical Department	(1899)	Alabama
Vanderbilt University	(1912)	Tennessee

Kansas June Examination

Dr. A. S. Ross, secretary of the Kansas Board of Medical Registration and Examination, reports the written examination held at Kansas City, June 16-17, 1925. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Forty-nine candidates were examined, all of whom passed. Ten candidates were licensed by reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Northwestern University Medical School	(1925)	92.6
University of Kansas School of Medicine	(1925)	88, 88.3, 88.4, 88.6, 88.6, 88.9, 89.2, 89.6, 89.7, 89.9, 90.1, 90.1, 90.1, 90.4, 90.4, 90.6, 90.6, 91, 91.2, 91.3, 91.6, 91.7, 91.8, 92, 92.1, 92.5, 92.6, 92.6, 92.7, 94.3, 96
St. Louis University School of Medicine	(1924)	87.8, 89.5
University Medical College of Kansas City	(1910)	88.7
Washington University School of Medicine	(1924) (1925)	87 87.8, 88, 89.7, 91.7
Creighton Medical College	(1924)	89, 91.4
University of Nebraska College of Medicine	(1925)	93, 93.8
Cornell University School of Medicine	(1924)	94.8
Western Reserve University School of Medicine	(1925)	93
University of Oklahoma School of Medicine	(1924)	86.6
Jefferson Medical College	(1919) (1920)	86.5 90.2

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Arkanas School of Medicine	(1911)	Arkansas
Bennett Medical College	(1913)	Illinois
Rush Medical College	(1921)	S. Dakota
University of Illinois College of Medicine	(1902)	Iowa
Kansas City Medical College	(1904)	Oklahoma
Northwestern Medical College, St. Joseph	(1888)	Nebraska
Creighton Medical College	(1918)	Nebraska
University of Nebraska College of Medicine	(1920), (1924)	Nebraska
Chattanooga Medical College	(1904)	Oklahoma

Book Notices

The Faith, The Falsity and The Failure of Christian Science. By Woodbridge Riley, Ph.D., Frederick W. Peabody, LL.B., and Charles E. Humiston, M.D., Sc.D. Cloth. Price, $3.50. Pp. 408. New York: *Fleming H. Revell Company, 1925.*

In this book, three investigators present accurate knowledge and clear exposition of the history and methods of Christian science.

Dr. Riley, psychologist and specialist in American philosophy, deals with the sources of Christian science, demonstrating plagiarism from Shakerism, Mesmerism and Quimbyism, together with inheritances from "Mother" Ann Lee and distortions of the Neo-Platonism of Bronson Alcott. Written correspondence, parallel passages, chronology and minute facts of Mrs. Eddy's life are employed as proof. Whatever of Christian science was original with its founder, Dr. Riley considers to have been the product of her abnormal psychologic processes. Given the facts in the life of any demagogue and a knowledge of mental mechanisms, it is not hard to put in doubt his mental soundness. Dr. Riley finds in Mrs. Eddy such symptoms as amnesia, automatic writing, delusions, hallucinations and obsessions.

Mr. Peabody, who as writer, lecturer and lawyer has come to grips with Christian science in the past, now attacks its "falsity." His 130 pages occupy the middle of the book. His zeal is equal to that of Dr. Riley, his satire as keen and his argument equally supported. "Two things," he says, "Mrs. Eddy dearly and desperately loved—money and power," and he sets forth clearly the means by which he believes she attained these things. First, he takes up her establishment of a church government so autocratic that, "completely dominant in her life, in her death she is dominant through her unchangeable laws." With such an irresponsible system established, irregularities certainly would be possible. Mr. Peabody undertakes to show how many irregularities were prosecuted. For instance he offers evidence of threatened boycotts against booksellers and publishers, whereby truths unfavorable to Christian science were suppressed. In his final chapter, "Cash," he tells some of the means by which Mrs. Eddy "harvested three million dollars from the gullibility of her followers."

The third, and final section of the book, entitled, "The Failure of Christian Science," is written by a physician. Dr. Humiston's section displays all the excellences of the other two parts, and to a physician is even more interesting. It is confined to the therapeutic side of the subject. The author draws parallels between characteristics of Christian science and those of medical quackeries. He displays the ignorance concerning medicine and what he deems trickery among Christian science practitioners. Then he analyses eighty-four testimonials of their "cures." The sixty-four pages of case reports which follow are the real meat of the section—"Failures of Christian Science." Instances of quarantine resisted, of last minute appeals to regular physicians, of needless deaths, fill the chapter. After these case reports comes Dr. Humiston's conclusion: "From the medical standpoint, Christian Science, as a system of treating human ailments, is thus seen to be cruel Failure."

The book is worth the time of both physician and layman. The careful research, cogent argument and incisive style of all three sections render it both profitable and absorbing.

An Introduction to Dermatology. By Sir Norman Walker. Eighth edition. Cloth. Price, $7. Pp. 373, with 172 illustrations. New York: William Wood & Company, 1925.

This edition has been largely rewritten, but by deleting references to rare conditions the author has avoided adding more than a few pages. As the title indicates, it is an introduction to dermatology rather than a reference work. There are a few references to the literature in the body of the text but otherwise no bibliography. The descriptions of the various disorders are very short and not always adequate. For example, under the title of pityriasis rubra a short description is given of the Wilson-Brocq type of secondary dermatitis exfoliativa, with no mention of the Hebra-Jadassohn idiopathic type, which differs in many essentials from the secondary type, and which is generally known as pityriasis rubra. Moreover, the illustration accompanying the description is obviously that of the secondary type. As the work represents a collection of lectures delivered at the University of Edinburgh, it is highly personal and subjective, which is much to be desired in a work of this kind, but which at the same time leads to much disagreement in opinion on the part of the critical reader. There are numerous colored plates prepared from moulages, which we would much prefer to see replaced in the next edition by good monochromatic photographs of the actual skin lesions.

TILL KÄNNEDOMEN OM SÅ KALLAD SPONTAN SUBARACHNOIDALBLÖDNING. *En klinisk studie. Akademisk avhandling.* Av Lennart Ehrenberg. Paper. Pp. 195. Uppsala: Almqvist & Wiksells, 1924.

This is an exhaustive monograph on spontaneous subarachnoid hemorrhage by an investigator whose first paper on the subject appeared in 1912, and who has been able to add ten cases of his own to sixty-two compiled from the literature and carefully abstracted. Ehrenberg claims a certain clinical independence for nontraumatic subarachnoid and pial hemorrhage occurring by itself apart from cerebral hemorrhage and meningitis. In a fairly large number of cases—thirteen of twenty-three examined postmortem—some form of arterial disease was present. In the others, many in young persons, some weakness or peculiarity of the cerebral vessels is supposed to exist, somewhat analogous to the poorly understood conditions underlying the tendency to nosebleed and subconjunctival hemorrhage in young persons.

A History of the Lycoming County Medical Society. Cloth. Price, $8. Pp. 418, with illustrations. Williamsport, Pa.: *Lycoming County Medical Society, 1925.*

A commendable effort is the publication of this, the first volume in the history of the Lycoming County Medical Society. Subsequent volumes are to include the transactions of the organization published at five year intervals with material taken from the society's bulletins. The present book gives a picture of the practice of medicine in Pennsylvania from the earliest times and then carries on the records of the society from year to year, beginning with 1864. The second portion of the volume presents the biographies of deceased members of the society; and the third portion, the biographies of those now practicing medicine in that community. The work concludes with special articles on various phases of medical practice, statements descriptive of the hospitals in the county, and a general statement on medical organization work in Pennsylvania. The book represents much editorial and research service, and is in every way a commendable production, particularly for a unit of the scope of the county society.

Medicolegal

Negligence of One Assuming Care of Injured Person

(Hoyt v. Tilton (N. H.), 128 Atl. R. 688)

The Supreme Court of New Hampshire says that one of the grounds on which the plaintiff sought as administrator to recover damages was for the alleged negligent performance by the defendant of an assumed duty to care for the plaintiff's intestate after his injury. Liability for such a wrong is clearly established in New Hampshire. The rule of law applicable is that the defendant is responsible for negligent acts while in the performance of the assumed duty, and that he cannot carelessly abandon a duty that has been assumed. The evidence in this case was not reported, but what the defendant did or did not assume to do was a question of fact, and the plaintiff was entitled to have submitted to the jury the issue presented by the charge of failure on the part of the defendant to perform an assumed duty to care for the injured man.

Father Not Liable for Services for Adult Daughter

(Breuer v. Dowden (Ky.), 268 S. W. R. 541)

The Court of Appeals of Kentucky, in reversing a judgment that was rendered in favor of plaintiff Dowden from which defendant Breuer appealed, does so with directions to dismiss the plaintiff's petition. The court says that for about eight months a daughter of the defendant was under the care of the plaintiff. Of this time she spent six weeks in a hospital away from her father's home. She testified that she was suffering from some nervous trouble, but was not confined to her bed or room, except while at the hospital, and then for the purpose of treatment. She was about 23 or 24 years of age, but had never had employment or earned her living. The evidence showed that she and her father were not on friendly terms, and that her mother was also estranged from him, although they lived in the same house. The daughter and her mother went to the plaintiff's office at the time his services were engaged. They gave a history of the daughter's case, but nothing was said about who would pay the bill or the amount to be charged. The plaintiff never called on the daughter at the parental residence, and the father never knew of the employment of the plaintiff until long after most of the services had been rendered.

From the texts and cases cited by the parties, the court deduces the rule to be that a parent is not liable for the debts of his adult child in the absence of a statute to the contrary, unless the child is in such a feeble and dependent condition physically or mentally as to be incapable of supporting himself; that if at the time the child becomes of age he is physically and mentally sound and able, if willing, to make and earn his own support, the parent is not liable for his debts or obligations thereafter contracted, even though he should later become sick or mentally unbalanced and therefore incapacitated to earn a livelihood. If, however, the child at the time of his arrival at the age of 21 is sick or otherwise incapacitated to earn a living for himself, and is, at the time, living in the home of the parent as a member of the household, the parent is liable for necessaries furnished him.

If it appeared from the evidence in this case that the adult daughter of the defendant who lived in the home as a member of the family was physically or mentally incapacitated to earn her own livelihood at the time she arrived at her majority, and that this disability continued until the employment of the plaintiff physician, the court thinks his cause would be sustainable. But in the absence of such a showing the court must hold that the father's liability for the debts of his adult daughter, even for necessities, terminated on her arrival at the age of 21 years, and having once terminated could not be revived even though she became sick and incapacitated while continuing as a member of his household.

It must not be overlooked that the physician was engaged by the daughter without the knowledge or consent of the father, and that the first bill rendered for services was made out and forwarded to her. When received by the daughter she immediately, without consulting the father, called at the physician's office and told him that she had nothing with which to pay him, and that she expected her father to pay the bill for her. Thereupon the physician mailed the bill to the father and requested payment. These facts made it certain that the services were rendered to the daughter on her credit, and that credit was not extended to the father. The court is also of the opinion that the mother had no authority as agent of the father, under the facts of this case, to engage the physician to perform services for her adult daughter, if indeed she did attempt to make such engagement.

Refusal to Call Physician for Child with Tetanus

(Beck v. State (Okla.), 233 Pac. R. 495)

The Criminal Court of Appeals of Oklahoma says that it appeared that an 11 year old son of defendant Beck had for some hours been ill from tetanus, from which he was suffering intense pain and rigidity of the muscles which caused his head and other portions of his body to be drawn into unnatural positions. Some neighbors, together with members of the defendant's family at his home where the boy lay ill, sought to relieve the child's suffering by prayer and appeals for divine aid; other neighbors intervened and advised the calling of a physician, which was at first refused and the suggestion repulsed. Finally, under pressure, consent was given by the defendant to the administering of medical treatment. Accordingly, a serum treatment was administered by two physicians, but the boy expired six or eight hours later. In the opinion of these physicians, the treatment was administered too late. From their testimony the inference might be drawn that, if the treatment had been administered earlier, the boy's life might have been saved.

This prosecution was based on Section 1855 of the Compiled Statutes of 1921 of Oklahoma, which provides that "any parent of any child who wilfully omits, without lawful excuse, to perform any duty imposed on him by law to furnish necessary food, clothing, shelter, or medical attendance for such child is guilty of a misdemeanor." The provisions of this section should be reasonably construed. A fair amount of discretion is vested in parents charged with the duty of maintaining and bringing up infant children, and this statute will not be construed to mean that a physician must be called for every trifling complaint with which a child might be afflicted, such as may be overcome by ordinary household nursing by members of the family. But where, as in this case, a child suffers intense pain, and where the muscles of the body have become drawn and rigid, it would seem that an ordinarily kind or prudent parent, solicitous for the welfare of his child and anxious to promote its recovery, would call in medical aid. A humane desire to give at least temporary relief from suffering should alone be sufficient to impel a parent to call a physician when his child is in intense pain during a prolonged convulsion. Under such circumstances it would seem that a parent is guilty of a violation of the provisions of this statute when he fails to furnish medical attendance.

To sustain a conviction in a case of this character, the evidence should show a wilful neglect of duty under all the circumstances. The defendant contended, on appeal, that the evidence did not show that he was neglecting a plain duty imposed by law; that the evidence did not show that he knew the gravity of the malady, but did show that, as soon as he was apprised of its gravity and probable fatal results, he consented to the administering of the serum; and that, if he made a mistake in deferring action until it was too late, it was an honest mistake, for which he should not be held criminally liable. These were questions primarily for the jury. While the testimony as to the length of time that the boy had suffered before the serum was administered and the attitude of the defendant in neglecting and refusing to call a physician or in discouraging medical treatment was not as definite as it might have been, the weight of the testimony was for the jury. From the testimony it evidently appeared to the jury, and it appears to this court, that the defendant was grossly remiss in his duty toward his child in not calling a physician earlier, and that the evidence as a whole was sufficient to support the verdict of guilty of omitting to furnish medical aid to his child, without lawful excuse.

The defendant's punishment was assessed at confinement in the county jail for six months and the payment of a fine of $50 and costs. But considering the fact that he appeared to have been a member of a religious sect which believes in faith and divine healing, and that he may have been influenced by other members of the sect there assembled, the court believes that the punishment was excessive, and should be modified by expunging the jail sentence.

Exact Cause of Infection Need Not Be Demonstrated

(Royal Indemnity Co. v. Industrial Accident Commission et al. (Calif.), 233 Pac. R. 381)

The District Court of Appeal of California, First District, Division 2, says that it was contended that the evidence before the industrial accident commission in this proceeding under the workmen's compensation act did not warrant a finding that the employee who instituted the proceeding and was awarded compensation sustained an injury by bumping his knee against a gate on the ranch on which he was working, which injury caused a slight wound, followed by a severe infection. The court does not deem it necessary to state what the evidence was; but says it was true that the nature of the injury, the facts and circumstances surrounding it, and the symptoms that followed made it impossible to demonstrate, beyond the possibility of a doubt, the exact cause of the infection which resulted in most severe and lengthy illness for the employee. But such demonstration was not required. There was medical testimony in the record sufficient to sustain the award, and, that being so, this court was not concerned with the conflicting testimony introduced before the commission.

Employers Need Not Make Rules for Ambulance Drivers

(Reed v. Ridout's Ambulance, Inc. (Ala.), 102 So. R. 906)

The Supreme Court of Alabama, in affirming a judgment for the defendant in this action for damages for injuries sustained by one of its employees while riding in its ambulance, which was driven into a post or other obstruction, says that the case was preeminently of the character of one of those in which it has been held, as a matter of law, that where the work is simple in character there is no duty on the part of the master to promulgate rules for his servants. Driving a motorcar, even a heavy truck or ambulance, is a simple, ordinary and individual act of common and daily occurrence. It is not collaborative, and in the defendant's business it had no relation to the duties or the safety of other employees—except, perhaps, as in this case, of a single assistant, who knew of the danger, if any, and who was a participant in the act. As to the impracticability of a rule limiting the speed of an ambulance used in emergency cases such as this, where it was stated that the ambulance was going to answer an emergency call to take a dangerously wounded person to a hospital, the court thinks there can scarcely be two opinions. Speed is of the very essence of an effective service. Dependent on traffic conditions at different times and places, a high rate of speed might be entirely safe on some occasions, and human life might depend on it—as it often does depend on the promptest medical or surgical relief. In the very nature of the case, the act was one involving discretion on the part of the driver, and not susceptible of control by preregulation. The conclusion cannot be avoided that there was a failure to show a condition that imposed on the defendant the duty of regulation by the promulgation of a rule or of rules.

Evidence and Instructions When Insanity Is a Defense

(People v. Krauser (Ill.), 146 N. E. R. 593)

The Supreme Court of Illinois holds, in this murder case, in which there was a defense of either feeblemindedness or insanity, that there was no error in the admission in evidence over objection of the testimony of two physicians, which they gave of physical and mental examinations that they had made of the defendant, which testimony was objected to as compelling the defendant to give evidence against himself. The court says that the rule is stated as follows:

> Where the defense interposed is insanity, evidence of the facts disclosed at a physical and mental examination of accused by physicians, either prior to the trial or during an adjournment of the court while the trial is in progress, does not vitiate the constitutional privilege of accused not to be a witness against himself.

Nor does the court consider that there was error in permitting the physicians to testify concerning the statements and conduct of the defendant in the circuit court on the hearing, before his plea of guilty had been withdrawn, they having been present, and being permitted to state what then occurred, as a part of the basis on which their opinions were formed. The evidence was proper to be presented to the jury as showing a part of the facts on which the physicians based their opinions as to the mental condition of the defendant. Nor was it error to permit the physicians to testify that the defendant was falsifying and feigning insanity. This followed necessarily from their opinion that he was neither insane nor feebleminded, which they presented to the jury.

But there was error in an instruction which, to justify an acquittal, required of the defendant not only ability to distinguish between right and wrong, but the power to choose between them and act according to his choice; he must not only understand the character of his act, but have the power to choose and to act accordingly. In *People* v. *Lowhone*, 292 Ill. 32, 126 N. E. 620, the ability to judge and the power to choose are held equally necessary to criminal responsibility, and therefore the lack of either will justify a verdict of not guilty. The instruction in question stated that both the knowledge of right and wrong are necessary to such a verdict, and it was therefore erroneous to give it.

Another instruction to the jury was that in order to find the defendant not guilty on the ground of insanity, such insanity must be so clearly proven as to raise a reasonable and well founded doubt of the defendant's guilt when the whole evidence was taken together, and not a mere shadow or possibility of a doubt. This imposed the burden of proving insanity on the defendant, and was erroneous for that reason. The burden of proving the sanity of the accused in a criminal case in which his sanity is in issue is always on the prosecution, and it is not necessary, before the jury can find the defendant not guilty, that insanity should be proved clearly or even by a preponderance of the evidence. It is only necessary that there should be evidence tending to prove insanity sufficient, in connection with all the evidence, to raise a reasonable doubt of the defendant's guilt. The use of the words "clearly proven," in the instruction, was erroneous. So was the use of the words "well founded" in connection with reasonable doubt. If a reasonable doubt actually exists, it is sufficient whether well or ill founded.

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Chicago, Oct. 20-24. Dr. Luther C. Peter, Chestnut and 20th Streets, Philadelphia, Secretary.

American Association of Railway Surgeons, Chicago, Oct. 21-23. Dr. Louis J. Mitchell, 29 East Madison Street, Chicago, Secretary.

American College of Radiology and Physiotherapy, Chicago, Oct. 19-22. Dr. Roy W. Fouts, 121 South 33d Street, Omaha, Neb., Secretary.

American College of Surgeons, Philadelphia, Oct. 26-30. Dr. Franklin H. Martin, 40 East Erie Street, Chicago, Director-General.

American Public Health Association, St. Louis, Oct. 19-22. Mr. Homer N. Calver, 370 Seventh Avenue, New York, Executive Secretary.

American Roentgen Ray Society, Washington, D. C., Sept. 22-25. Dr. Charles L. Martin, Baylor Hospital, Dallas, Texas, Secretary.

Association of Military Surgeons of the United States, New York, Oct. 8-10. Col. J. R. Kean, U. S. A. Ret., Army Medical Museum, Washington, D. C., Secretary.

Central States Pediatric Society, Chicago, November 6-7. Dr. H. T. Price, Westinghouse Building, Pittsburgh, Secretary.

Colorado State Medical Society, Colorado Springs, Sept. 29-Oct. 1. Dr. F. B. Stephenson, Metropolitan Building, Denver, Secretary.

Delaware State Medical Society, Wilmington, Oct. 13-14. Dr. W. O. La Motte, Industrial Trust Building, Wilmington, Secretary.

Indiana State Medical Association, Marion, Sept. 23-25. Mr. T. A. Hendricks, Hume Mansur Building, Indianapolis, Executive Secretary.

Interstate Postgraduate Assembly of America, St. Paul, Minn., Oct. 12-16. Dr. W. B. Peck, 82 Stephenson St., Freeport, Ill., Managing Director.

Kansas City Clinical Society, Kansas City, Mo., Oct. 5-9. Dr. James R. McVay, Rialto Building, Kansas City, Mo., Secretary.

Kentucky State Medical Association, Owensboro, Oct. 5-9. Dr. A. T. McCormack, 532 West Main Street, Louisville, Secretary.

Missouri Valley, Medical Society of the, St. Joseph, Sept. 30-Oct. 2. Dr. Charles Wood Fassett, 115 East 31st Street, Kansas City, Mo., Secretary.

Pennsylvania, Medical Society of the State of, Harrisburg, Oct. 5-8. Dr. Walter F. Donaldson, Jenkins Arcade, Pittsburgh, Secretary.

Southern Medical Association, Dallas, Texas, November 9-12. Mr. C. P. Loranz, Empire Bldg., [illegible] Ala., Secretary.

Vermont State Medical S[illegible], Oct. 15-16. Dr. William G. Ricker, 29 Main St[illegible], Secretary.

Virginia, Medical Society of, Richmond, Oct. 13-16. Miss Agnes V. Edwards, 104½ West Grace Street, Richmond, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to The Journal for a period of three days. No foreign journals are available prior to 1920, nor domestic prior to 1923. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested).

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

30: 147-290 (Aug.) 1925

Growth of Crypts and Glands of Human Stomach. G. H. Scott, Minneapolis.—p. 147.
*Roentgenogram in Early Scurvy. K. F. Pelkan, Boston.—p. 174.
Amount of Cerebrospinal Fluid in Hydrocephalus. A. G. Mitchell and M. Zeligs, Cincinnati.—p. 189.
*Rickets in Infants. Treatment with Irradiated Milk. B. Kramer, Baltimore.—p. 195.
*Spectroscopic Observations on Cod Liver Oil. F. W. Schultz and M. Morse, Minneapolis.—p. 199.
*Spasmophilia; Inorganic Constituents of Blood and Cerebrospinal Fluid. J. D. Nourse, D. N. Smith and J. I. Harman, Cleveland.—p. 210.
*Van den Bergh Test for Icterus in Infants. C. G. Grulee and A. Mebane, Chicago.—p. 219.
*Acrodynia. F. C. Rodda, Minneapolis.—p. 224.
*Blanching Test in Scarlet Fever. Use of Specific Streptococcus Antiserum. S. J. Levin and J. P. Parsons, Ann Arbor.—p. 232.
Apparatus for Rapid Preparation of Protein Milk. W. C. Davison, Baltimore.—p. 238.
Icterus Neonatorum. S. Van Creveld, Amsterdam, Holland.—p. 240.

Roentgen-Ray Diagnosis of Scurvy.—Animal experiments and observations of clinical cases lead Pelkan to summarize his paper as follows: The ground-glass appearance of the shaft of the bone, which is due to the disappearance of trabeculae, is an important and hitherto underestimated roentgenographic sign of scurvy. Pelkan supports Wimberger's claim that the edging of the epiphyseal centers is a constant and reliable sign of scurvy. The combination of broadened epiphyseal line, edging of the epiphyseal center and disappearance of trabeculations in the shaft is pathognomonic of this disease. It is proposed by Pelkan to substitute for the term "Trümmerfeldzone" the term "scurvy line." He asserts that scurvy can be diagnosed by the roentgenogram before any of the accepted clinical symptoms (pain, hemorrhagic manifestations) have appeared.

Irradiated Milk for Rachitic Children.—In a series of eight cases of active rickets seen by Kramer, the administration of irradiated milk produced healing in every case. This was demonstrable at the end of the third week and was marked at the end of the fourth week. The chemical changes in the blood following this treatment were identical with those previously reported, which followed the administration of cod liver oil to rachitic children, or the exposure of such children to ultraviolet rays or to sunlight. Irradiated milk feeding induces a marked retention of both calcium and phosphorus.

Spectroscopy of Cod Liver Oil.—A suggestion which is offered by Schultz and Morse as a result of their investigation is that in a further study of the activation of cholesterol, the disappearance of the bands in its absorption spectrum may be used as an index of its antirachitic activity, perhaps eliminating to some degree the necessity for rat experiments.

Blood and Cerebrospinal Fluid in Spasmophilia.—The inorganic constituents of the blood and cerebrospinal fluid were investigated by Nourse et al. in seventeen cases of spasmophilia. No significant changes from normal were found, except the usual decrease in the calcium content of the blood during the active phase. In the cases of spasmophilia with convulsions, on the day of the first examination the calcium content of the blood serum and spinal fluid was found somewhat lower than the average for the entire series. Similar determinations were made in twelve cases of various diseases. No significant changes from normal were found in this group.

Van den Bergh Test in Icterus Neonatorum.—The results obtained by Grulee and Mebane agree quite well with those of other investigators who have studied the van den Bergh reaction in simple icterus neonatorum. Both from the umbilical blood and from the blood serum of the infant after the jaundice had developed only the indirect reaction was obtained. In three cases of jaundice occurring in the course of acute respiratory infections, and in one case following administration of neo-arsphenamin, the reactions were all indirect, which findings agree with the contention of van den Bergh. In two cases of catarrhal jaundice only indirect reactions were seen; in one case of obstructive jaundice the results were so irregular as to be of questionable value. The evidence here presented is such as to raise a doubt as to the value of the van den Bergh reaction as a method of differentiating between obstructive and nonobstructive types of jaundice in infants and in young children.

Acrodynia.—In Rodda's series of seventeen cases early recognition of the disorder and prompt removal of tonsils and adenoids have been followed by speedy recovery in all patients.

Blanching Test in Scarlet Fever.—In fifteen cases in which it was tried by Levin and Parsons, an antiserum prepared by injecting horses with the culture and filtrate of hemolytic streptococci obtained from cases of scarlet fever was effective in producing the Schultz-Charlton blanching phenomenon. The antiserum was not effective in blanching the eruption of two cases of erysipelas and of two cases presenting a scarlatiniform eruption on an anaphylactic basis. In three cases the authors were unable to blanch the rash of scarlet fever by using diphtheria antitoxin.

American Journal of Electrotherapeutics and Radiology, New York

43: 251-300 (July) 1925

Radiometric Investigation of Germicidal Action of Ultraviolet Radiation. W. W. Coblents, Washington, D. C.—p. 251.
Light in Prevention of Rickets. F. H. Humphris, London, England.—p. 263.
Cases of Sacro-Iliac Displacements. W. B. Show, New York.—p. 266.
Surgical Tuberculosis Treated with Carbon Arc Lamp. P. K. Sauer, New York.—p. 270.

American Journal of Roentgenology and Radium Therapy, New York

14: 1-104 (July) 1925

*Surgical Relief of Pain in Deep Carcinoma of Face and Neck. T. Fay, Philadelphia.—p. 1.
*Teratoid Tumor of Testicle with Late Metastases in Mediastinum. E. A. Pohle, Ann Arbor, Mich.—p. 5.
Treatment of Lung and Mediastinal Neoplasms by High Voltage Roentgen-Ray Therapy. S. Stern, New York.—p. 8.
Roentgentherapy and Diathermy in Blastomycosis. A. U. Desjardins, Rochester, Minn.—p. 14.
Lesions of Diaphragm. E. L. Jenkinson, Chicago.—p. 16.
*Simple Penetrating Ulcer of Greater Curvature of Stomach. E. S Blaine, Chicago.—p. 20.
Roentgen Rays in Negative Diagnois of Cancer of Stomach. J. W. Hunter, Norfolk, Va.—p. 24.
Fractures of Os Calcis. A. C. Hall, Detroit.—p. 27.
Central Chondroma of Middle Third of Shaft of Humerus; Case Report. C. M. Richards, J. B. Bullitt and D. R. Wilson, San Jose, Calif.—p. 29.
*Case of Extensive Generalized Skeletal Metastases Following Primary Carcinoma of Breast. A. J. Bendick and A. W. Jacobs, New York.—p. 35.
*Obstetric Roentgenology; Anencephaly. H. P. Doub, Detroit.—p. 39.
Modified Granger Method of Roentgenographing Sphenoids. L. Bryan, San Francisco.—p. 57.

Surgical Relief of Pain in Cancer of Face.—Avulsion of the posterior root of the fifth nerve has proved of value in Fay's experience in relief of pain from deep carcinoma of the face involving the branches of this nerve, as well as rendering anesthetic the involved area, permitting extensive treatment of the growth without discomfort. Ligation of the posterior roots of the cervical nerves has been successfully performed for involvement of the cervical plexus and cervical roots. Section of the petrous ganglion of the ninth nerve is possible when the invading tumor enters the distribution of this nerve, causing pain, though as yet this procedure has not been undertaken for carcinoma.

Teratoid Tumor of Testicle.—A case is reported by Pohle of a teratoid tumor (embryonal carcinoma) of the testicle treated by surgery and roentgen-ray irradiation, with a local recurrence in one month, and metastases to the mediastinum after two years. The secondary growth responded well to deep roentgen-ray therapy and the patient is still well ten months after treatment.

Penetrating Ulcer of Greater Curvature of Stomach.—Penetrating ulcer of the upper part of the greater curvature of the stomach is a comparatively rare lesion. Blaine reports one case and describes the findings.

Extensive Skeletal Carcinoma Metastases.—Bendick and Jacobs relate a case of carcinoma of the breast of four and one-half years' duration in which the breast was removed two years ago. Metastases developed in all the cranial bones, both jaws, all divisions of the vertebrae, the ribs, both humeri, both shoulder girdles, the bony thorax, right radius and ulna, left radius, the phalanges and carpal bones of the right hand, and phalanges and metacarpal bones of the left hand.

Anencephalus.—Seven cases of anencephaly are reported by Doub. Four of these were diagnosed roentgenologically before delivery. Spina bifida was also diagnosed in one of these four cases. Two cases of intra-uterine fetal death with the characteristic roentgen-ray findings, a case of hydrocephalus, and a number of other abnormalities of pregnancy, as seen by roentgenologic examination, are also reported.

Boston Medical and Surgical Journal

193: *283-330 (Aug. 13) 1925*

*Use of Drugs in Heart Disease. P. D. White, Boston.—p. 283.
New England Heart Association. H. Jackson, Boston.—p. 292.
Nursing Problems. A. Worcester, Waltham, Mass.—p. 293.
*Clinical Spirography. I. Pulmonary Response to Work in Normal, Obese, Cardiac and Anemic Persons. S. G. Mudd and J. H. Means, Boston.—p. 297.

Drugs in Heart Disease.—White says that helpful drugs in the treatment of heart disease are the sedatives, particularly bromids and morphin, when indicated, and occasionally purgatives, especially the salines, but there is nothing particularly new in their use or application.

Effect of Exercise on Respiration.—Spirographic studies have been made by Mudd and Means on a variety of problems. This paper deals with the effect of muscular work, both in normal and in pathologic subjects. The obese group showed the most marked increase in total ventilation following the standardized exercise. Dyspnea prevailed in three of the four patients studied. The pulse showed a slight acceleration following the exercise. The marked increase in total ventilation of the obese group was not dependent alone on the increased weight of the individuals, but may be due to diminished cardiac reserve. The group of patients with compensated cardiac disease showed an increase in total ventilation following the standardized exercise, which was approximately two thirds as marked as in the obese group. Dyspnea prevailed in eight of the ten individuals studied. The pulse showed a slight increase following the exercise. The normal subjects observed, showed an increase in total ventilation following the standardized exercise, which was approximately one-third as marked as in the obese group, and nearly one half as pronounced as in the cardiac group. None of the eight persons studied were dyspneic. The pulse showed a vagotonic response. The anemic group showed an increase in pulmonary ventilation less than the normal group. Dyspnea was not present in the three patients studied. The resting pulse, although higher than the other three groups, showed a vagotonic reaction. The reduced increase in pulmonary ventilation, following the standardized exercise, in the anemic group, is associated with an increased tolerance for carbon dioxid as well as by a raised carbon dioxid dissociation curve. The more marked the anemia, the closer the carbon dioxid dissociation curve approaches the carbon dioxid dissociation curve for normal plasma. In addition, it is indicated that the more severe the anemia the greater the tolerance for rebreathing carbon dioxid. In each of the pathologic groups studied, there were persons who responded quite like normal individuals, other persons who reacted in a very abnormal manner, as well as variations between these two.

Illinois Medical Journal, Oak Park

48: 85-168 (Aug.) 1925

Suggested Analogy Between Hyperthyroidism and Gastric Ulcers. G. W. Crile, Cleveland.—p. 109.
Effective Treatment of Osteomyelitis by Aluminum-Potassium Nitrate. M. Thorek. Chicago.—p. 112.
Diagnosis and Treatment of Gallbladder Disease — Medical Aspects. J. Phillips, Cleveland.—p. 123.
Treatment of Gonorrhea. A. E. Mowry, Chicago.—p. 128.
Intravenous Use of Mercurochrome-220 Soluble. C. S. Bucher and R. S. Funk, Champaign.—p. 135.
Preventable Complication at Time of Operation and During Healing Process. W. A. Fisher, Chicago.—p. 136.
Wassermann Test. M. B. *Wolff, Chicago.—p. 143.*
Convalescence from Diseases of Childhood. M. P. Borovsky, Chicago.—p. 145.
Abuse of Medical Charity. B. H. Breakstone, Chicago.—p. 150.
Sudden Death from Arsphenamin. H. M. Hedge, Chicago.—p. 157.
Danger of Disease Transmission Through Dentistry Prevented Through New Sterilizer Device. P. J. L. Nemmers, Chicago.—p. 159.

Iowa State Medical Society Journal, Des Moines

15: *423-472* (Aug. 10) 1925

Hidden Cause of Sudden Death. A. D. Woods, State Center.—p. 423.
Diagnosis and Treatment of Neurosyphilis. W. E. Ash, Council Bluffs.—p. 428.
Modern Aids to Labor. W. B. Hendry, Toronto, Canada.—p. 434.
Systemic Aspects of Achylia Gastrica. L. R. Crummer, Omaha.—p. 437.
Movable Kidney. W. L. Downing, LeMars.—p. 441.
Employment of Buffer Solutions in Acid Intoxications and Acidosis. F. A. Hecker, Ottumwa.—p. 446.
Splenic Anemia. W. D. Runyon, Sioux City.—p. 448.
When and What to Eat. J. A. Pinkerton, Traer.—p. 450.

Journal of Immunology, Baltimore

10: 643-739 (July) 1925

**Bacterial Anaphylaxis. III. N. P. Sherwood and O. O. Stoland, Lawrence, Kan.—p. 643.*
Acquired Immunity in Silkworms. R. W. Glaser, Princeton, N. J.—*p. 651.*
Heat Produced by Reactions of Antigens with Antibodies. S. Bayne-Jones, Rochester, N. Y.—*p. 663.*
*Immunologic Studies in Tuberculosis. III. Allergic Reactions Obtained *in Animals* Sensitized with Killed Tubercle Bacilli. S. A. Petroff and F. W. Stewart, Trudeau, N. Y.—*p. 677.*
Significance of Bacterial Allergy as Sign of Resistance. H. Zinsser, H. K. Ward and F. R. Jennings, Jr., Boston.—p. 719.
*Bacterial Allergy; Allergic Reactions of Hemolytic Streptococcus. H. Zinsser and F. B. Grinnell, Boston.—p. 725.
Specific Part of Heterogenetic Antigen. K. Landsteiner and P. A. Levene, New York.—p. 731.
*Flocculation Reaction with Immune Serums Produced by Injections of Organ Emulsions. J. van der Scheer, New York.—p. 735.

Bacterial Anaphylaxis.—As a result of their observations Sherwood and Stoland conclude that the smooth muscle reaction of Dale is not a necessary criterion of sensitization.

Experimental Allergy in Tuberculosis.—An attempt has been made by Petroff and Stewart to repeat with animals sensitized by dead tubercle bacilli the various allergic phenomena which in the past have been observed in animals previously infected with living tubercule bacilli. Preliminary conclusions drawn are: (1) animals sensitized with dead tubercle bacilli give an allergic reaction which in its essentials does not vary from that observed in infected aniamls, and (2) the severity of the reaction depends in the degree of the hypersensitiveness.

Experimental Streptococcus Allergy.—Zinsser and Grinnell assert that streptococcus allergy is easily produced in guinea-pigs. The most effective method consists in injecting intraperitoneally whole living streptococci and the most potent material for the demonstration of such allergy by skin reaction is the broth filtrate of streptococcus cultures.

Flocculation Reaction with Immune Serums.—Serums flocculating alcoholic organ extracts were obtained by Scheer in several cases in which no reactions were observed with the same serums before injections.

Journal of Laboratory and Clinical Medicine, St. Louis

10: *785-963 (Aug.) 1925*

Pernicious Anemia. J. W. Shuman, Los Angeles.—p. 875.
*Action of Nitrites on Pulmonary Circulation. I. Nitroglycerin. G. R. Love and H. McGuigan, Chicago.—p. 882.
*Id. II. Sodium and Amyl Nitrite. G. R. Love, H. McGuigan and C. E. Wiley, Chicago.—p. 885.

Education as Cure for Present-Day Evils in Clinical Pathology. J. A. Kolmer, Philadelphia.—p. 891.
Rôle of Clinical Pathologist in Hospital Efficiency. M. T. MacEachern, Chicago.—p. 898.
Study of Tissue Autolysis in Vivo. II. Toxic Material. E. C. Mason and E. C. Davidson, Detroit.—p. 906.
*Studies with B. Acidophilus and B. Bulgaricus. I. Implantation of B. Bulgaricus. N. Kopeloff and P. Beerman, Ward's Island, N. Y. —p. 914.
Physicochemical Aspects of Hemolysis. III. R. Rockwood and E. C. Mason, Rochester, Minn.—p. 917.
Method for Instantaneous Photomicrography of Skin Capillaries. C. Sheard and G. E. Brown, Rochester, Minn.—p. 925.
An Improved Staining and Drying Plate. H. C. Sweaney, Chicago.—p. 929.
Micromethod for Enumeration of Microcolonies. F. T. Briedigan and R. M. Chiang, Battle Creek, Mich.—p. 921.
Sources of Error in Blood Urea and Nitrogen Determination. E. L. Sevringhaus and F. Hipple, Mendota, Wis.—p. 934.
*Simple Method for Estimation of Free Hydrochloric Acid in Gastric Contents. E. Hollander, New York.—p. 935.
Technical Improvements in Urea Distillation by Folin-Wu Method. H. E. Butka and F. E. Meisner, Los Angeles.—p. 937.

Action of Nitroglycerin on Pulmonary Circulation.—The effect of nitroglycerin on pulmonary arterial pressure and excised vessels is discussed by Love and McGuigan. Nitroglycerin in small doses often produces a rise of pulmonary pressure due to increased cardiac output from acceleration and increased venous return. Nitroglycerin reduces a high pulmonary pressure apparently by dilating the pulmonary arteries. It does not stimulate excised pulmonary arteries of dogs. Thus the action of nitroglycerin is the same upon pulmonary and systemic arteries, although less marked on the pulmonary vessels. The action on pulmonary pressure is, however, often counterbalanced or overbalanced by the secondary effects of its action on the systemic vessels. The action of nitroglycerin on pulmonary circulation does not justify its administration in the treatment of pulmonary hemorrhage. Experimentally, at least, it appears to be contraindicated in hemoptysis.

Action of Sodium and Amyl Nitrite on Pulmonary Circulation.—Love, McGuigan and Wiley found that amyl and sodium nitrite, particularly amyl nitrite, often raise the pulmonary pressure in dogs, due to an augmented cardiac output from increased venous return and cardiac acceleration. Large doses of sodium nitrite often produce a rise of both carotid and pulmonary pressures with cardiac irregularities, which sometime terminate in ventricular fibrillation. On excised pulmonary arteries, amyl nitrite and small doses of sodium nitrite produce relaxation. Large doses of sodium nitrite cause a contraction of these vessels, which it is suggested is caused by irritation and not true stimulation. The action of amyl and sodium nitrite on the pulmonary arteries is the same, though less marked, as on the systemic vessels; however, the effect on pulmonary pressure is often counterbalanced or overbalanced by the secondary effects of the action on the systemic circulation.

Studies with Bacillus Acidophilus and Bacillus Bulgaricus.—Of twelve human subjects receiving 1 liter of *B. bulgaricus* milk for from ten to fifteen days, only two revealed the presence of *B. bulgaricus* in the feces. In one of these subjects the number of *B. bulgaricus* present was so small as to be negligible. Since the bacterial content of the milk fed was only 50,000,000 per cubic centimeter, it is believed by Kopeloff and Beerman that further corroboration of the failure to implant *B. bulgaricus* is required, when using the same dosage of milk containing about 200,000,000 per cubic centimeter, as is recommended in the feeding of *B. acidophilus.*

Estimation of Free Hydrochloric Acid in Gastric Contents.—Hollander uses bibulous paper which has been dipped in an alcoholic solution of 0.25 per cent. of dimethylamidoazobenzol and dried. This test paper when dipped into weak solutions of hydrochloric acid gives excellent shades of color. The range of color obtained is much greater than that given by congo paper. Five colors were selected representing acidities of 10, 20, 30, 40 and 50 c.c. of tenth-normal hydrochloric acid per hundred cubic centimeters of water. These colors have been made into a chart similar to a Tallqvist hemoglobin scale.

Kentucky Medical Journal, Bowling Green

23: 392-437 (Aug.) 1925

Prenatal Care. H. M. Rubel, Louisville.—p. 395.
Pituitrin in Obstetrics. T. K. Vanzandt, Louisville.—p. 399.
Forceps. W. T. McConnell, Louisville.—p. 401.
Indications for Cesarean Section. H. A. Davidson, Louisville.
The Baby. F. J. Kiefer, Louisville.—p. 405.
Heart Disease. J. R. Morrison, Louisville.—p. 412.
Syphilitic Involvement of Vascular System. B. Willmott, Louisville.—p. 416.
Removal of Seventy-Four Pound Ovarian Cyst Under Anesthesia. E. S. Allen, Louisville.—p. 421.
Hereditary Syphilis Traced Through Four Generations. C. Pope, Louisville.—p. 424.
Acute Glaucoma; Case. J. J. Wynn, Louisville.—p. 427.
Severe Anaphylactoid Reaction Following Administration of Antirabic Vaccine. M. Y. Marshall, Henderson.—p. 429.
Von Jaksch's Infantile Anemia. J. W. Bruce, Louisville.—p. 429.
Traumatic Rupture of Spleen: Splenectomy. L. W. Frank, Louisville. —p. 431.
Reflex Pains About Head and Face. M. C. Baker, Louisville.—p. 433.

Medical Journal and Record, New York

122: 185-244 (Aug. 19) 1925

Repair of Inoperable Soft Palate by Utilizing Faucial Tonsils. J. E. Sheehan, New York.—p. 185.
Results of Ultraviolet Therapy in Certain Tuberculous and Other Cases. F. A. Davis, Boston.—p. 188.
Treatment of Fracture of Femur. R. Whitman, New York.—p. 193.
Whitman Reconstruction Operation on Hip Joint for Ununited Intracapsular Fracture. M. B. Cooperman, Philadelphia.—p. 194.
Hanot's Cirrhosis. K. Murray, Battle Creek, Mich.—p. 196.
Control of Morbidity and Mortality of Diphtheria. D. M. Lewis, New Haven, Conn.—p. 199.
Pituitary Type of Headache. H. R. Harrower, Glendale, Calif.—p. 201.
Mastoid Operation. J. Friedman and S. Greenfield, Brooklyn.—p. 204.
Dental Infections and Heart Irregularities. S. C. Smith, Philadelphia. —p. 207.
Influence of Soft Parts on Blood Pressure. C. B. Masson, New York. —p. 210.
Calcified Pericardium in Case of Peptic Ulcer; Case. C. W. Rainey, Chicago.—p. 212.
Pulse and Blood Pressure Variations During Exercise and Their Bearing on Myocardial Efficiency. G. H. Robertson, Wanganui, New Zealand.—p. 213.
Hypertrophy of Heart. W. D. Reid, Boston.—p. 219.
Classification of Heart Murmurs; Extracardiac Murmurs. J. Epstein, New York.—p. 221.
Treatment of Hay-Fever. Study of 114 Cases. C. A. Spivacke, New York.—p. 223.
Historical Medicine. J. Wright, Pleasantville, N. Y.—p. 226.
Experiments on Man Demonstrating Dynamogenic Power of Liquid Extract of Animal Testicles. M. B. Sequard.—p. 227.

New Jersey Medical Society Journal, Orange

22: 231-278 (July) 1925

General Practitioner and Fracture Situation. J. J. Moorhead, New York. —p. 231.
Uremia. I. Disturbance of Nitrogen Elimination. R. Floyd, New York. —p. 239.
Appendicitis. B. H. Garrison, Red Bank.—p. 249.
Melanotic Carcinoma. L. L. Leonard and W. G. Hermann, Asbury Park.—p. 255.
Spectemur Agendo. A. S. Harden, Newark.—p. 262.

Philippine Journal of Science, Manila

27: 161-288 (June) 1925

Five New Species of Chinese Plants. E. D. Merrill.—p. 161.
Poisonous and Worthless Fishes. A. W. C. T. Herre.—p. 167.
Bees from Samar, P. I. T. D. A. Cockerell and N. Leveque.—p. 169.
Diptera of Medical and Veterinary Importance. I. Types of Older Authors in Continental Museums. W. S. Patton.—p. 177.
Genus Andes Stal. F. Muir.—p. 201.
Helminth Parasites of Hogs in Philippine Islands. B. Schwarts.—p. 227.
New Genus of Wasp Parasites of Philippine Islands. W. Schultze.—p. 235.
Comparative Resistance to Foot Rot of Citreus Species as Root Stocks. H. A. Lee.—p. 243.
Tenebrionids of Indo-Malay Zone. H. Gebien.—p. 257.

Philippine Islands Medical Association Journal, Manila

5: 157-180 (June) 1925

*Cancer in Philippine General Hospital. P. C. Guazon.—p. 157.
Anti-Allergic Treatment of Bronchial Asthma. J. C. Leveriza.—p. 161.
Industrial Fatigue. W. Pascual.—p. 168.

Cancer Among Filipinos.—Guazon analyzes 373 cases of cancer occurring among Filipinos, representing an incidence of cancer of 1.98 per cent. in males and 6.1 per cent. in females. The majority of these cases occurred between 30 and 60, 107 cases among the men and 179 cases among the women. Among the men the head was the seat of the cancer in forty-seven cases, the abdomen in seventy-seven cases. The stomach (15 per cent.), cheek (12 per cent.), liver (11 per cent.), penis (12 per cent.), and neck (8 per cent.), were the most frequently involved organs in men, and breast (26 per cent.), uterus (25 per cent.), cheek (17 per cent.), and neck (11 per cent.), in women. Only about 25 per cent. of all cases were operable. Only the operable cases have been treated radically by operation. In some a combined form of treatment has been tried, in others only radiation by roentgen ray or radium has been used. The treatment was a failure in more than 50 per cent. of the cases. Of the male patients 15 per cent. recovered; 22 per cent. and 19 per cent., respectively, were improved; 13 and 31 per cent., respectively, died.

Southwestern Medicine, Phoenix, Ariz.

9: 293-334 (Aug.) 1925

Analysis of Forty-Eight Cases of Pelvic Fracture. W. B. Watts, Miami, Ariz.—p. 293.
Lung Conditions Found in Industrial Work Other Than Tuberculosis and Silicosis. N. C. Bledsoe, Bisbee, Ariz.—p. 297.
Twenty-Five Years of Fractures. F. T. Wright, Douglas, Ariz.—p. 300.
Problems of Industrial Surgeon. G. A. Bridge, Bisbee, Ariz.—p. 302.
Industrial Hernia. C. R. Swackhamer, Superior, Ariz.—p. 304.
Problems in Prostatectomies. R. V. Day, Los Angeles.—p. 307.
Pathology of Anuria. C. S. Vivian, Phoenix, Ariz.—p. 311.
Phases of Urologic Diagnosis. W. G. Schultz, Tucson, Ariz.—p. 313.
Nephritis. S. C. Davis, Tucson, Ariz.—p. 311.
Intra-Ocular Hemorrhage. D. F. Harbridge, Phoenix, Ariz.—p. 318.
Conservative Obstetrics. H. A. Reese, Bisbee, Ariz.—p. 320.
Tuberculosis of Cervical and Thoracic Glands. W. W. Britton, El Paso, Texas.—p. 322.

Surgery, Gynecology and Obstetrics, Chicago

41: 129-254 (Aug.) 1925

*Operation for Total Removal of Cerebellopontile (Acoustic) Tumors. W. E. Dandy, Baltimore.—p. 129.
*End-Results in One Hundred Cases of Anterior Poliomyelitis Subjected to Operation. S. W. Boorstein, New York.—p. 149.
Edema and Hypertrophy of Cervix Uteri During Puerperium. A. Turenne, Montevideo, Uruguay.—p. 156.
Cystic Inflammation of Vesical Neck and of Prostatic Urethra. J. A. Lazarus, New York.—p. 162.
Jaundice. J. B. Deaver, Philadelphia.—p. 166.
*Fetus Amorphus; Case. J. P. Simmonds and G. A. Gowen, Chicago.—p. 171.
Iniencephalus—Cause of Extreme Dystocia. W. A. N. Dorland, Chicago.—p. 180.
Enteroliths and Diverticula, Especially of Large Bowel; Case. M. F. Porter, Fort Wayne, Ind.—p. 185.
Gas Gangrene in Civil Practice. Three Cases. S. T. Fortune and D. M. Vickers, New York.—p. 187.
*Carcinomatous Ovarian Teratoma with Premature Puberty and Precocious Somatic Development. R. H. Harris, Battle Creek, Mich.—p. 191.
Etiology of Pre-Eclamptic Toxemia from Clinical Aspect. E. Cary, Chicago.—p. 194.
*Tannic Acid in Treatment of Burns. E. C. Davidson, Detroit.—p. 202.
*Use of Paraffin as a Primary Dressing for Skin Grafts. F. A. Coller, Ann Arbor, Mich.—p. 221.
Oil Sterilization of Edged Instruments. F. H. Lahey and R. L. Mason, Boston.—p. 226.

Operation for Removal of Cerebellopontile Tumor.—An operative procedure is presented by Dandy by which cerebellopontile (acoustic) tumors can be removed completely. After a thorough and carefully guarded intracapsular enucleation, the capsule of the tumor is painstakingly dissected from the brain stem.

Astragalectomy.—Boorstein's review leads him to conclude
that for stabilization of the foot, *astragalectomy is the best*
operation as to the result in both function and shape. After
an astragalectomy, the muscles throughout the entire lower
extremity, even the thigh muscles, improve immensely. Open,
instead of closed (subcutaneous), tenotomy should be per-
formed. Transplantation of biceps for quadriceps gives very
satisfactory results. Soutter's operation for transplantation
of hip flexors is a very useful and satisfactory operation for
cases of even long duration. Steindler's operation of trans-
plantation of plantar muscles gives good results, but one must
be sure to stretch the foot considerably and use a brace for a
long time. Gallie's operation of tendon fixation has not given
desired results. Tendon transplantation fails if a weak
muscle is expected to do the work of a strong muscle.

Fetus Amorphus.—A specimen of one of the rarer types of fetus amorphus is described in detail by Simmonds and Gowen. This was a kidney-shaped mass covered with skin, with a growth of hair on one end, a rudimentary mouth and eye, and the rudimentary base of a skull and three vertebrae. The mass was composed chiefly of edematous connective tissue, with blood vessels and fat, and with a few fibers of striated muscle and a very small mass of glia cells and a very few ganglion cells.

Carcinomatous Ovarian Teratoma.—A girl, aged 5 years and 10 months, who had a carcinomatous teratoma of the right ovary, associated with sexual and somatic precocity, came under Harris' care in 1914. The tumor was removed the following day, and now, after ten years and eight months, this patient is in good health and free from discoverable recurrence.

Tannic Acid Treatment of Burns.—Davidson recommends the use of tannic acid in the treatment of burns. The burned area is covered with dry sterile gauze pads which are held in place by sterile gauze bandages. This dressing is soaked with a 2.5 per cent. aqueous solution of tannic acid. It is essential that the tannic acid solution be made up fresh just before use, because it deteriorates on standing with the formation of the far less astringent gallic acid. In order to prevent the deep caustic tissue injury found by Schuetz to follow the application of concentrated tannic acid, small sections of the dressing have been opened for inspection at the end of twelve hours, eighteen hours and twenty-four hours. As soon as the part is found to have assumed a light brown color, all dressings are removed. In order to facilitate removal of the dressing without pain to the patient and without causing further trauma, it has been found desirable to wet the gauze with fresh tannic acid solution shortly before this is done. The wound is thereafter left exposed to the air but is carefully protected from mechanical injury, chilling and bacterial invasion by a suitable cradle draped with sterile linen. In the more serious cases, artificial heat has been supplied by placing within the cradle so prepared one or more ordinary electric light bulbs. In a few cases 5 per cent. tannic acid ointment (made with equal parts of petrolatum and lanolin as a base) was substituted for the aqueous solution. Although it appeared to have a definitely beneficial effect, it is far less efficacious than the former. The chief value of the ointment is in its use about the eyes, where the astringent solution cannot be used with entire safety. One of the most essential features of the management of all burn cases is that of keeping up the fluid balance in the body. This is accomplished by forcing fluids by mouth, where possible, or by hypodermoclysis, proctoclysis or intravenous infusions according to the special indications in each case. Blood transfusion has been employed in some of these cases, apparently with favorable effects.

Primary Paraffin Dressing for Skin Grafts.—After the skin grafts are in place Coller covers them with paraffin. Flexible paraffin of the type used in the treatment of burns is applied as a spray by means of the paraffin atomizer. The entire grafted area, and a margin of normal skin at its periphery, is covered with a layer of paraffin at least 1.5 mm. in thickness. The grafts are thus firmly anchored and their displacement by subsequent manipulations is unlikely. The chief argument against the use of paraffin is that it seals the wound, causing a retention of secretion which will elevate the graft. *Coller has not found this to be true so much as is the case* when other impervious substances are used.

Tennessee State Medical Association Journal, Nashville

18: 29-57 (June) 1925

American Medical Association and Periodic Health Examination. W. D. Haggard, Nashville.—p. 29.
Treatment of Acute Suppurative Appendicitis. C. Brower and J. D. Lester, Nashville.—p. 33.
Redundant Colon; Two Cases. R. S. E. Murray, National Sanatorium.—p. 37.
Diagnosis of Exophthalmic Goiter. W. C. Chaney, Memphis.—p. 44.
Hospital Standardization. C. N. Cowden, Nashville.—p. 51.
Multiple Pigmented Hemorrhagic Sarcoma of Kaposi. H. King, Nashville.—p. 55.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2: 241-278 (Aug.) 1925

What Should Be Standard of Purity of Milk? I. Bacteriologic Standard. R. S. Williams.—p. 241.
Id. II. Point of View of Health Officer. W. G. Savage.—p. 244.
Id. III. Point of View of Clinician. E. Pritchard.—p. 245.
By What Means Can Pure Milk be Obtained and at What Cost? I. Point of View of Producer. W. Buckley.—p. 245.
Id. II. Point of View of Veterinary Surgeon. G. P. Male.—p. 249.
Id. III. Point of View of Distributor. J. H. Maggs.—p. 251.
Treatment of Hare-Lip. H. F. MacAuley.—p. 253.
*Uses of Coelioscopy. A. R. Short.—p. 254.

Coelioscopy.—The advantages of coelioscopy over exploratory laparotomy as Short sees them are: (1) it can be done without discomfort under local anesthesia; (2) the incision is so small that it is only necessary to keep the patient in bed for a day or two; (3) no special instruments are needed; (4) it can be done at the patient's home; (5) it is available when it would be dangerous to perform laparotomy.

China Medical Journal, Shanghai

39: 575-666 (July) 1925

Points of Importance in Dealing with Leprosy Problem. F. Muir.—p. 575.
*Survey of Leprosy in China. H. Fowler.—p. 584.
Present Status of Treatment for Leprosy. V. H. Heiser.—p. 591.
Modern Treatment of Leprosy in China. H. Fowler.—p. 594.
*Treatment of Leprosy in Bangkok with Ethyl Esters from Hydnocarpus Anthelmintica. H. R. O'Brien and B. M. Runchaiyon.—p. 600.
*Nature of Leukocytosis Induced in Rabbit by Administration of Chaulmoogra Oil and Its Derivatives. B. E. Read.—p. 605.
*Preparation and Use of Ethyl Esters from Chaulmoogra Oils. B. E. Read and C. T. Feng.—p. 612
*Oral Administration of Chaulmoogra Oil in Treatment of Leprosy. B. E. Read.—p. 619.
Leprosy. C. N. Davis.—p. 632.
Century of Medical Missions in China. J. L. Maxwell.—p. 636.

Leprosy in China.—Fowler has found it impossible to estimate even approximately the total population of any particular leper area in China. The largest leper population is to be found in the Province of Kwangtung, and extensive tracts of China give no trace of the disease. Leprosy seems to be specially associated with waterlogged and ill-drained areas of the country. With the exception of Kwangtung and parts of Fukien no provision whatever is made by the local authorities for the isolation or support of the leper. But for the aid rendered by the Christian church the lot of the leper in China today would be hopeless. Today, after centuries of empirical and medieval treatment of leprosy by Chinese physicians and quacks, modern scientific methods, coupled with a form of voluntary segregation on the part of the lepers themselves, happily give good prospects of changing the entire outlook of China's lepers and ultimately of ridding China of leprosy.

Treatment of Leprosy in Bangkok.—The ethyl esters of the oil from the fruit of *Hydnocarpus anthelmintica* were used by O'Brien and Runchaiyon in the Red Cross clinic and hospital in Bangkok for weekly intramuscular injections in leprosy cases. After two years 357 reexaminations were made. Improvement was obtained in 71.1 per cent. of the cases, which was marked in degree in 22.7 per cent.

Nature of Leukocytosis Induced by Chaulmoogra Oil.—The hemolysis previously observed after the administration of toxic doses of chaulmoogra oil and its preparations was found by Read to be negligible or insignificant after therapeutic doses. There is observed a leukocytosis accompanied by a large number of monocytes in the circulating blood, both after large and small doses of the various preparations of this drug. Coincident with the occurrence of large monocytes in the circulating blood, showers of giant macrophages were found in blood from the right heart. These macrophages are known to be histocytes, originating in the liver and possibly in other organs, they travel into the right heart bearing stained fat, they seem to be filtered off in the lungs and thence migrate to the lymph stream. The leukocytosis induced by chaulmoogra oil is a means of transport whereby the drug is brought into direct contact with the bacilli in the lymph circulation.

Preparation of Ethyl Esters from Chaulmoogra Oils.—An account is given by Read and Feng of the present method of preparation of the ethyl esters in Peking. Fractionation of the esters *yielded the major portion* of the hydnocarpus fraction between 184 and 190 C. at a reduced pressure of 2 mm. Directions are given for the removal of free fatty acids liable to cause painful reactions when the drug is administered intramuscularly. Camphor and creosote are discussed as adjuvants in the treatment of leprosy. The solubility of camphor in the mixed ethyl esters was found to be 33.74 per cent.

Chaulmoogra Oil by Mouth in Leprosy.—Read suggests that when chaulmoogra oil is administered orally it should be given in doses of about 6 drops once daily or less frequently if progress can thereby be obtained. There appears to be indicated the use of magnesium salts as a laxative and the use of calcium salts as an adjuvant in treatment with chaulmoogra oil or its esters.

Indian Medical Record, Calcutta

45: 191-238 (July) 1925

*Curative Value of Autolyzed Tubercle Bacillary Culture Vaccine in Pulmonary Tuberculosis and Leprosy. R. Row.—p. 191.
Problem of Tuberculosis. N. R. Sengupta.—p. 197.
Results Obtained in Treatment of Surgical Tuberculous Lesions by Various Agents. V. G. Rele and P. V. Gharpure.—p. 200.
Longevity of People Who Have Been at One Time of Their Lives Declared Tuberculous. R. B. G. Chatterjee.—p. 202.
Tuberculosis of Skin and Tuberculides. A. Gupta.—p. 204.
Tuberculosis; Phlyctenular Kerato-Conjunctivitis. B. Bhaduri.—p. 215.
Treatment and Prevention of Tuberculosis. R. K. Sen.—p. 217.
Tuberculin Treatment. S. K. Mukherji.—p. 220.
Some Etiologic Factors of Tuberculosis in India in General and Bengal in Particular. A. Roy.—p. 229.
Pulmonary Tuberculosis. P. Ganguli.—p. 233.

Vaccine Therapy of Pulmonary Tuberculosis and Leprosy.—The vaccine which has been applied by Row in the treatment of these infections is an emulsion of a four to six weeks' growth of tubercle bacilli on a solid medium. This vaccine contains a fat splitting ferment and a feeble proteolytic enzyme. The antigenic property of this emulsion, as seen from the complement fixation tests with the serum of patients suffering from tubercle infection, has been found to be definitely positive, though feebly so in some cases, while that for leprosy is very strongly marked. As to results from its use—they have been very promising. In nerve leprosy the cordlike thickened nerves have come to the normal after about thirty injections. The anesthetic patches have disappeared in a few weeks, the atrophy has been controlled and the treophic ulcers made to heal rapidly. The rationale of the action of the autolyzed vaccine is purely speculative and seems to be the result of the usual production of protein immune bodies or a stimulation of their production. These bodies literally starve the tubercle bacilli leaving the acid-fast material to be disposed of by the sputum or be otherwise destroyed. There is evidence of this in the character of the tubercle bacilli in the sputum of cases showing improvement.

Journal of Hygiene, London

24: 1-110 (July) 1925

Plague Fleas. L. Fabian Hirst.—p. 1.
*Rôle of Twort-D'Herelle Phenomenon in Epidemics of Mouse Typhoid. W. W. C. Topley, J. Wilson and E. R. Lewis.—p. 17.
*Relationship of Paratyphoid Fever to Food Poisoning Outbreaks. W. G. Savage and P. B. White.—p. 37.
Experimental Study of Epidemiology. M. Greenwood and W. W. C. Topley.—p. 45.

Action of Bacteriophage in Epidemics.—The observations made by Topley, Wilson and Lewis do not suggest that the presence of the bacteriophage will, in itself, prevent the epidemic spread of infection, check an epidemic when it has once started, or appreciably reduce the mortality among the population at risk. The authors do not share d'Herelle's optimism as to the probable results of the wholesale administration of the lytic principle in a public water supply. They do not suggest that the Twort-d'Herelle phenomenon has no significance in the epidemic spread of disease, but it does not appear to them that the problem is the simple and straightforward one envisaged by d'Herelle. The results of the last experiment of this series are in substantial agreement with d'Herelle's experiments on barbone in cattle, so far as they concern the action of the lytic filtrate in causing an immunizing response.

Relationship of Paratyphoid Fever to Food Poisoning Outbreaks.—Savage and White believe that owing to faulty classification and terminology of bacterial types, it is very common to ascribe outbreaks of food poisoning to *B. paratyphosus* B, the common cause of paratyphoid fever. If such a conception is true, it is obvious that *B. paratyphosus* B can at one time cause paratyphoid fever, at another an outbreak of food poisoning. Further, one would expect in outbreaks of either condition that some cases would be of the one clinical type while others would exhibit the other. In particular in outbreaks of paratyphoid fever in which the vehicle of infection was some form of food, it is to be anticipated, on this view, that a considerable proportion of the cases would be of acute food poisoning type. This conception is one with which the authors entirely disagree.

Quarterly Journal of Experimental Physiology, London

15: 1-102 (March) 1925

Alterations in Form of Mammalian Erythrocytes in Hypotonic Plasma. E. Onder and W. G. Millar.—p. 1.
*Physiology of Gastric Secretion. 1: Gastric Secretion by Local (Mechanical and Chemical) Stimulation. R. K. S. Lim, A. C. Ivy and J. E. McCarthy.—p. 13.
*Id. II. Intestinal Phase of Gastric Secretion. A. C. Ivy, R. K. S. Lim and J. E. McCarthy.—p. 55.
Action of Epinephrin on Perfused Fish Heart. A. D. MacDonald.—p. 69.
*Effect of Lesions of Hind and Midbrain on Micturition in Cat. F. J. F. Barrington.—p. 81.

Gastric Secretion by Local Stimulation.—Lim, Ivy and McCarthy report on their observations of the gastric phase. They found that mechanical distention of the stomach stimulates gastric secretion in man and dog, in the latter with and without vagi intact. The application of certain substances, such as raw meat juice, B-alanin, and histamin when applied to the gastric mucosa in quantities insufficient to cause distention excites gastric secretion. Strong sodium chlorid solutions, glucose (50 per cent.) solution, and Liebig's meat extract stimulate, but not to the extent that the above substances do, the formation of mucus being markedly augmented. Cane sugar, starch and fats do not stimulate when applied. Water stimulates when used in a quantity sufficient to cause adequate distention. Water is absorbed from the stomach of unanesthetized animals if permitted to remain for one half to one hour. The stimulation of gastric secretion by mechanical distention, or by the submaximal application of certain chemicals, is inhibited by the hypodermic administration of 1 mg. atropin and by the introduction of fats into the intestine, which agents are known to inhibit the secretion that occurs after the ingestion of a meal. Fat applied to the gastric mucosa only slightly inhibits the action of the above excitants. The mechanism concerned in gastric secretion is discussed and a wrong hypothesis is suggested. It is said that these observations offer a satisfactory explanation for at least a part of the hypernormal gastric secretion ("hypersecretion") that is observed to occur in cases of pyloric obstruction.

Intestinal Phase of Gastric Secretion.—The observations recorded by Ivy et al. are said definitely to disprove the specific pyloric or gastrin theory as originally stated by Edkins. A vascular hypothesis is tentatively suggested to explain the mechanism of intestinal stimulation. The results demonstrate that the intestine as a pathway for the stimulation of the gastric glands must be considered in an analysis of the factors concerned in the genesis of gastric secretion. In short, the existence of an intestinal phase is proved.

Effect of Hindbrain and Midbrain Lesions on Micturition.—Barrington found that destruction of a small part of the brain just ventral to the internal edge of the superior cerebellar peduncle from the level of the middle of the motor nucleus of the fifth nerve behind to the level of the anterior end of the hindbrain in front is followed by a permanent inability to empty the urinary bladder if the lesion is bilateral, but not if it is unilateral. Destruction of the midbrain from the ventral half of the side of the posterior end of the aqueduct outward to just beyond the mesencephalic root of the fifth nerve is followed when the lesion is bilateral by a permanent loss of consciousness of wanting to micturate or defecate, but does not impair the performance of either of these functions. A lesion in the position of the last, but rather more extensive, also produces frequency of micturition.

15: 103-200 (May) 1925

*Corpus Luteum Extracts and Ovulation in Rabbits. W. P. Kennedy.—p. 103.
Significance of Elastic Tissue of Human Fetus. E. E. Hewer.—p. 113.
*Action of Pituitary Extract on Urinary Secretion. N. S. Craig.—p. 119.
Studies on Pituitary. V. Avine Depressor Response. L. T. Hogben.—p. 155.
Id. VI. Localization and Phyletic Distribution of Active Materials. L. T. Hogben and G. R. DeBeer.—p. 163.
Reactions of Pupils in Chloralised Animal. R. J. S. M'Dowall.—p. 177.
New Methods of Demonstrating Changes in Tone of Arterioles. R. J. S. M'Dowall and B. L. Worsnop.—p. 181.
*Hematocrite Method of Measuring the Volume of Erythrocytes. W. G. Millar.—p. 187.
*Action of Pituitary Extracts on Intestinal Muscle. A. D. MacDonald.—p. 191.

Corpus Luteum Extracts Inhibit Ovulation.—Kennedy states that a substance or substances can be extracted in the cold from the corpus luteum of the cow, in the fresh or desiccated state, which inhibits ovulation in the rabbit, if injected intravenously in sufficient dosage. Long-continued dosage with these extracts may be correlated with more or less marked degenerative changes in the ovary, and to a progressively less degree in the liver and suprarenal glands, none being observed in the kidney. In the experimental animals in which the point was tested, ability to ovulate was not recovered in three months from the cessation of treatment. The fertility of the male controls was not impaired by parallel treatment. The toxic effects produced were insufficient to cause convulsions or death.

Action of Pituitary Extract on Urinary Secretion.—Craig summarizes the results of his experimental work as follows: In anesthetized animals, intravenous administration of pituitary extract produces a definite diuresis. Continuous intravenous administration of pituitary extract in 0.9 per cent. saline solution produces the same result. In unanesthetized dogs, pituitary extract administered subcutaneously controls the diuresis which normally would result from the administration of water or physiologic sodium solution by mouth. If concentrated saline solution is used, diuresis results. A diuresis produced by drinking 230 c.c. of 5 per cent. urea solution was prolonged, but its onset was not delayed, by subcutaneous administration of pituitary extract. Delay in the absorption of fluid from the alimentary tract, if it occurs after pituitary extract administration, is sufficient to account for a delay in the onset of the diuresis for three and a half hours. A subcutaneous injection of pituitary extract controls a diuresis produced by the intravenous administration of 120 c.c. of Ringer's solution at the rate of 4 c.c. per minute; if, however, the intravenous administration is given at the rate of 12 c.c. per minute, no antidiuretic effect occurs. The hemoglobin percentage in human beings is not appreciably altered by the drinking of large quantities of water. If, however, the drinking of large quantities of water is immediately preceded by a subcutaneous injection of pituitary extract, a definite reduction in the hemoglobin percentage occurs during the first two hours of the experiment.

Measuring Volume of Erythrocytes.—Millar is of the opinion that the speed of centrifuging has an important bearing on the accuracy of measuring the volume of erythrocytes by the hematocrit. A method is described, based on the comparison of readings at different speeds of rotation, whereby the actual cell volume may be obtained by the hematocrit, which removed the chief objection to this instrument.

Action of Pituitary Extracts on Intestinal Muscle.—Doubt is thrown by McDonald's studies on the commonly held view that the pituitary gland contains a general stimulant of plain muscle fibers, since for the isolated intestine there is no evidence of action in such concentration nor of such specificity as would justify that belief.

Bulletins de la Société Médicale des Hôpitaux, Paris

49: 1089 1143 (July 17) 1925

*Nature of Drug Eruptions G. Milian —p 1090.
Lines Like Striae of Pregnancy on Chest of Epileptic Girl. Achard and Bloch —p. 1093
Spontaneous Cure of Lung Abscess Achard and Mouzon —p 1094
*Heliotherapy in Marasmus, in Joint Tuberculosis, After Pneumothorax. Armand Delille and Linossier —p 1097; 1099, 1100
Case of Multiple Neuroma P Schiff —p 1100
Chronic Dermatitis from Sunlight P Carnot and E Terris —p 1105
Endocarditis of Typhoid Origin Lemierre et al —p 1113
*Immunization of Infants Against Diphtheria Ribadeau Dumas et al —p 1121
Vaccination of Mother Ineffectual in Prophylaxis of the New Born Ribadeau Dumas et al —p 1124
Pseudohydrothorax with Ascites A. Ricaldoni —p 1126
Tuberculoma in Brain of Adult. Pilod and Fribourg Blanc —p 1128
Iodized Oil in Pericarditis N Fiessinger and A Lemaire —p 1135.
Case of Possibly Syphilitic Meningitis Pissavy and Delafontaine —p 1137
*Insulin in Treatment of Marasmus Nobécourt and Lévy.—p. 1139.
Mechanism of Erythrocyte Sedimentation S Balachowsky —p. 1141.

Biotropic Infectious Nature of Nine-Day Drug Eruptions.—Referring to the recently recorded case of a measles-like eruption that occurred on the ninth day after treatment with luminal sodium, Milian asserts that the erythema is of infectious nature. He compares it with the infectious erythema from arsenicals, appearing on the ninth day, while the toxic eruption does not become manifest till later. The phenomenon may be due to the stimulation of latent bacilli, as well as to the impaired defense of the organism from sympathetic disturbances of the endocrine glands Arsphenamin has proved to be an elective poison for the sympathetic-endocrine system, phenobarbital seems to belong to the same category Serum sickness may also belong in this group.

Sunlight Treatment in Different Diseases of Young Children—Delille and Linossier report three cases of malnutrition in which heliotherapy induced spectacular improvements. Sun baths, given an infant with atrophy, aged 11 months, were followed by general amelioration, gain of weight and subsequent normal development The treatment brought about the healing of a tuberculous metatarsophalangeal joint in a child over 2 years old. Sun baths induced great improvement of the general condition in an infant treated previously by pneumothorax These three infants were kept all day long, quite naked, in the hospital yard

Failure of Immunization of Infants Against Diphtheria.—Ribadeau-Dumas and his co-workers conclude from tests with anatoxin vaccination, that infants, under 4 months, are refractory to vaccination against diphtheria, since the injections do not enhance the antitoxic property of the blood. Anatoxin vaccination of pregnant women did not influence the antitoxin content in the blood of the new-born, and therefore no prophylaxis of the new-born can be attained by vaccination of the mother against diphtheria. The same may be true for other infections

Insulin in Treatment of Malnutrition.—Nobécourt and Lévy observed an infant, aged 3 months, with a grave form of marasmus After the usual treatment had failed, insulin was tried Two daily injections of 0 5 c c of insulin (4 units) with 10 c c of 30 per cent. glucose solution were given subcutaneously for five days Then one injection every second or third day, for two months. Then the first five days' treatment was repeated while the infant was fed with two thirds of milk mixed with one third of buttermilk and 15 per cent. of sugar. The infant gained 400 gm in two weeks

Journal de Radiologie et d'Electrologie, Paris

9: 257 304 (June) 1925

Roentgenography of Encysted Pleuritis in Children P. Duhem and P Seguin —p 257
Multiple Exostoses in a Child Laquerrière and Loubier.—p 267.
Present Status of the Skin Dose A. Béclere —p 275
Electrotherapy in Toxic Goiter. Bosc —p 284.

Paris Médical

57: 53 80 (July 18) 1925

Child Surgery and Orthopedics in 1925 Mouchet and Roederer —p. 53.
*Infectious Arthritis in Infants Frœlich —p 64.
"Modern Orthopedics" H L. Rocher —p 68
Deformity of Jaw from Plaster Jacket. E. Cadenat.—p. 73.
*Treatment of Rachitic Deformity. C. Roederer —p 77.

57: 81 96 (July 25) 1925

"Closed" Pulmonary Tuberculosis E Sergent and R Turpin.—p. 81.
Chlorination of Drinking Water. E Techoueyres —p 84.

57: 97-128 (Aug 1) 1925

Urology in 1925. R. Dossot —p 97.
Early Diagnosis of Cancer of the Kidney. F. Legueu and B. Fey.—p 108
Painful Circumscribed Hydronephrosis F Marsan —p. 113.
Grave Latent Lesions of the Kidney. Pillet.—p. 118.
Latent Calculi in the Kidney. C Lepoutre —p 121.
Emergency Prostatectomy. O Pasteau —p 124.

Pneumococcus Arthritis in Infants.—Frœlich describes, out of seventeen cases observed in five years, five cases of healed acute infection of the hip joint, and two of a still active process—all consecutive to pulmonary pneumococcus infection. One of the still active cases presented a spontaneous total elimination of the head of both femurs. In the other case there was a pneumococcus infection of one hip joint and a tuberculous process in its mate. Unilateral or bilateral dislocation, consecutive to resorption of the head of the femur, was the consequence in the five older cases. The dislocation is often mistaken for a congenital deformity. While with congenital luxation only abduction of the limb is restricted, in the acquired form extension is impossible also. The discovery in the hip region of scars from fistulas may help in clinical examination. The diagnosis should be based chiefly on roentgenograms, since the picture is pathognomonic in the affection. The treatment of acquired dislocation is the same as of the congenital, but the results are much less satisfactory in these cases.

Treatment of Deformities from Rickets.—Roederer believes that sunlight or diet cannot cure the bone deformities from rickets even in young children. If bending or distortion of the leg bones occurs in infants, from 12 to 18 months old, the treatment may consist only in keeping the children absolutely off their feet. The only way to insure this is with a plaster splint This combined with massage, sunlight and baths, may notably improve, in one or two months, bow-legs or knock-knees, even in children up to 2½ years. In grave cases osteotomy, preceded or not by three or four weeks' application of a cast, is indicated.

Presse Médicale, Paris

33: 1041-1056 (Aug 5) 1925

Spirochetes in Cerebrospinal Fluid of Syphilitics Jeanselme et al.—p 1041
Spontaneous Fracture in Tuberculous Osteitis C. Lenormant —p 1042.
*Catheterization of the Ureter in Nephritic Colic. G Marion —p 1043.
Gye and Barnard's Theory of Cancer G Roussy —p 1044

Catheterization of the Ureter May Arrest Kidney Colic.—Marion reports three peculiarly demonstrative cases to illustrate the relief that may be afforded by catheterization of the ureter in prolonged attacks of nephritic colic, with fever and retention of calculi Introduction of the catheter into the ureter, if possible, passing over the stone, immediately relieves the pain, and may induce the escape of the calculus in the next few days. He emphasizes that while morphin combats the pain, it contracts the ureter, and therefore the stones cannot descend Belladonna, given in a daily dose of 0 08 gm in pills, not only relieves the pain, but suppresses the ureter spasm, without impairing the peristaltic movements Cases were observed in which, under belladonna, stones were expelled within a few days, while morphin was without effect.

33: 1057 1072 (Aug 8) 1925

*Local Serotherapy in Meningitis K Lewkowicz —p. 1057.
Silent Complications of Otitis H Aboulker.—p 1059.
Present Status of Anesthesia E Faure —p. 1067.

Intraventricular Injection of Antiserum in Meningitis.—Lewkowicz emphasizes that in meningococcus infection of the meninges the ventricles of the brain are always involved. The fact should be considered in specific serum treatment of the disease since the communication between the spinal space and the ventricles may be blocked, and thus the serum injected by lumbar puncture may not reach the ventricles The results in eleven infants and twenty-three adults, treated by lumbar or intraventricular injections, showed that in subjects above 2 years, the intraventricular injections should be preferred.

Schweizerische medizinische Wochenschrift, Basel

55: 705-724 (July 30) 1925

Typhoid Fever in Basel. E. Jessen.—p. 705.
*Serum Proteins in Pulmonary Tuberculosis. Alder and Zaruski.—p. 709.
*Psychiatric Symptoms in Postencephalitic Conditions. M. Schmidt.—p. 712.
Vaccination Against Chickenpox. W. Hoffmann.—p. 716.

The Proteins in the Serum and Exudates in Pulmonary Tuberculosis. — In tuberculosis the serum proteins are increased and the percentage of globulin is higher, especially in cases with an unfavorable prognosis. Alder and Zaruski discuss the various methods for estimation of the different protein fractions.

Postencephalitic Conditions.—Schmidt states that in the postencephalitic parkinsonian syndrome it is found that a certain parallelism exists between the retardation of the motor and the mental processes. The latter can be determined by association tests.

55: 725-748 (Aug. 6) 1925

Radiotherapy in Gynecology. W. Fürst.—p. 725.
Roentgen-Ray Diagnosis in Gallbladder Disease. L. Bischoff.—p. 731.
*The Basal Metabolism. J. Stephani.—p. 732.

Basal Metabolism.—Stephani draws the following conclusions from her technical, experimental, and clinical studies: The average consumption of oxygen is 6.16 c.c. per minute and kilo of body weight in the normal male (at 760 mm. mercury), and 4.98 c.c. in the female (at 760 mm. mercury). During menstruation the latter figure is decreased about 14 per cent. In mild cases of exophthalmic goiter the increase of the metabolic rate may be within the normal limits (+ 15 per cent.). An average of 2 per cent. of the amount of oxygen that passes through the lung is absorbed in normal persons; this percentage is higher in slender persons and in toxic goiter, and is lower in the obese.

Clinica Medica Italiana, Milan

55: 99-188 (Oct.) 1924

*Cholesteremia in Lead Poisoning. A. Ceresoli.—p. 99.
Medical Versus Surgical Treatment of Peptic Ulcer. G. Albergo.—p. 106.
*Epidemic Encephalitis. N. Samaja.—p. 128.
*Epidemic Encephalitis. F. D'Alessandro.—p. 147.
Syphilis in Relation to Tuberculosis. G. Poggio.—p. 162.
Conservation of Antirabies Virus. Ivo Novi.—p. 180.

Cholesterol in the Blood in Lead Poisoning.—Ceresoli concludes from his experiments on dogs and clinical research that the cholesterol varies with the functional capacity of the liver, the organism behaving in this respect in lead poisoning the same as in infectious diseases.

Epidemic Encephalitis.—Samaja has had a man under observation for two years who presented first typical epidemic encephalitis and then a parkinsonian syndrome to which now has been added mal perforant. He incriminates the encephalitis as responsible for the mal perforant, and urges search for encephalitis in the antecedents in such cases before assuming tabes.

Epidemic Encephalitis.—The necropsy findings in a case fatal in about six weeks showed hemorrhagic foci. The young man had been attacked and beaten on the head two months before.

Riforma Medica, Naples

41: 553-576 (June 15) 1925

*Cinematization. A. Pellegrini.—p. 553.
*Malta Fever Simulating Tuberculosis. V. Vanni.—p. 555.
*Syphilis in Rheumatic Arthritis Deformans. A. Oro.—p. 557.
Psycholepsy. G. Tescione.—p. 562.
Recent Works on Surgical Treatment of Epilepsy. E. Aievoli.—p. 564.

Cinematization.—Pellegrini insists on the necessity for revision of the prevailing methods of amputation in order to adapt the stump for eventual volitional control of the artificial limb by the muscles.

Form of Malta Fever Simulating Pulmonary Tuberculosis.—Vanni cites Pisani's recent report on fifteen cases of pulmonary localization of Malta fever in a total of seventy-five cases in an epidemic. The spleen and the liver were usually enlarged, and the Bruce micrococcus was found almost in pure culture in the sputum, but several of the cases had been recorded as tuberculosis.

Arthritis Deformans of Syphilitic Origin.—In one of the two cases described, the joint affection began at the age of 31 in a man with stigmata of congenital syphilis. The joint pains were worse at night and there was much headache at times. Years of treatment for the supposed rheumatism gave no relief, but under mercury and bismuth the pains subsided and function improved, after a brief stage of severe focal exacerbation. Oro urges tentative treatment for syphilis in every case of chronic polyarticular rheumatism, and warns not to be deterred from continuing it by the focal reaction.

41: 625-648 (July 6) 1925

Vitamin B and Fixation of Calcium. U. Baccarani.—p. 625.
Technic for Detection of Apparently Sound Male Gonococcus Carriers. Cultivation of the Sperm. G. Graziadei.—p. 627.
*Dulness in Right Front of the Chest. O. Cantelli.—p. 630.
Gye and Barnard's Research on Cancer. A. Ferrannini.—p. 633.

Dulness Over the Liver.—Cantelli refers to what he calls the cupola area of dulness in the right front of the chest. When the dulness disappears on reclining horizontally, the liver is probably responsible for it, while its persistence and spread suggest glandular disease at the hilum.

41: 649-672 (July 13) 1925

*Salivary Index of Renal Function. G. Pacetto.—p. 649.
*Malaria and Gallstones. O. Cignozzi.—p. 652.
Clinical Value of the Wassermann Reaction. E. Mariotti.—p. 655.
Gye and Barnard's Research on Cancer. I. Jacono.—p. 659.

Urea in the Saliva.—Pacetto's research has confirmed the reliability of the urea concentration in the saliva as an index of renal function. Concordance between the percentage of urea in the blood and in the saliva was complete in 89 per cent. of fifty-five subjects. In the others, the salivary index indicated retention while the blood showed only normal figures. He compared other methods with the Hench and Aldrich technic, obtaining concordant results in 84 per cent. He adds that as all the probable sources of error tend to raise the salivary index, a normal figure excludes retention almost with precision.

Malaria and Gallstones.—Cignozzi practices in a malaria zone, and has been impressed with the exceptional prevalence of gallstones in the populace, and especially in all with a history of malaria. This disease attacks the liver and spleen almost constantly, and a history of malaria should turn the scale in favor of cholecystectomy in patients with recurring gallstone colic.

Annaes Brasil. de Derm. e Syph., Rio de Janeiro

1: 1-91 (Jan.) 1925

*Dermal Leishmaniasis. E. Rabello.—p. 3.
*Transmission of Bouba to Animals. A. Fraga.—p. 32.
Pemphigus Following Epidermic Cysts. J. Motta.—p. 37.
Xeroderma Pigmentosum; Two Cases. A. Fraga.—p. 44.
Acanthosis Nigricans in a Girl and in a Woman. de Moura Costa.—p. 47.
Multiple Hemorrhagic Sarcomatosis in Adult Male. A. Fraga.—p. 53.
Present Status of Bismuth in Treatment of Syphilis. J. Motta.—p. 55.

Dermal Leishmaniasis.—Rabello gives illustrations showing the mutilating effect of leishmaniasis affecting the skin and mucous membranes at the present day and as depicted in prehistoric pottery in Peru. He protests against its being called American leishmaniasis, as he declares that it is the same affection known elsewhere as Oriental sore. Any difference in aspect and course is due to the secondary infections. Fully 90 per cent. of the cases in Brazil are mild, and spontaneous cures are common. The 10 per cent. of grave cases does not justify geographical limitations.

Transmission of Brazilian Bouba to Animals.—The dogs and some of the rabbits did not develop the disease and only one of the two monkeys—all inoculated with the pertenuis spirochete derived from five human cases of bouba. Fraga's research thus confirms the possibility of transmitting bouba to animals. The causal micro-organisms proliferated rapidly in the local region with no tendency toward generalization to date.

Anales de la Facultad de Medicina, Montevideo

10: 193-306 (March) 1925

*The Pseudo-Edema of Dementia Praecox. B. Etchepare.—p. 193.
*Hydatid Cysts in the Liver. D. Prat and C. Piquerez.—p. 204.
Hydatid Cysts Observed in Uruguay. A. Roldan.—p. 291.

Pseudo-Edema in Dementia Praecox.—Among the vasomotor and trophic disturbances of dementia praecox, Dide described what he called catatonic pseudo-edema. Etchepare gives an illustrated description of a case in a woman, aged 26. The edema involved the entire left leg. Under treatment with luminal the patient became tranquil, and the edema disappeared almost completely. As the psychic symptoms returned, two months later, the edema returned also in a lesser degree, the leg below the knee presenting a cyanotic effect.

Hydatid Cysts in the Liver.—Prat and Piquerez tabulate the details of sixteen cases in which the cyst perforated into the biliary passages. The literature on the subject shows that the cyst opened into the common bile duct in 23.8 per cent., into the gallbladder and cystic duct in 33.3, and into the hepatic in 42.9 per cent. In every case of liver colic with symptoms suggesting obstruction of the common bile duct, accompanied by urticaria, the perforation of a hydatid cyst into the biliary passages should be suspected. Only in one of the 136 cases on record was the diagnosis made before the operation. The mortality in the operative cases ranged from 33 to 45 per cent. Of the sixteen personal cases described, only nine recovered. They recommend to operate on the cyst under local anesthesia.

Brazil-Medico, Rio de Janeiro

1: 301-312 (June 13) 1925

*A Case of Goundou. Souza Mendes.—p. 301.
Three Cases of Epibulbar Cancer of the Eye. E. Campos.—p. 304.

1: 313-324 (June 20) 1925

The Physiology of the Cardiovascular Apparatus. Pimenta Bueno.—p. 313.
A Diffuse Phlegmon in a Diabetic. A. Bcavista Moscoso and A. Pinheiro de Ulhôa Cintra.—p. 316.
Pterygium. E. Campos.—p. 318.

A Case of Goundou in Brazil.—Souza Mendes remarks that not more than three cases of this osteoplastic periosteitis of the nose have been published in Brazil. He reports a case in a Portuguese, aged 53, who had resided in Brazil since 1892. The man refused to allow removal of the exostoses.

Gaceta Médica de Caracas

31: 369-384 (Dec. 31) 1924

The Fourth National Medical Congress of Venezuela.—p. 369.
*Uncontrollable Vomiting of Pregnancy. E. Ruiz Viso.—p. 372.
Treatment of Congenital Syphilis in Young Infants. Villegas Ruiz.—p. 372.
The Histopathology of Yellow Fever. W. H. Hoffmann.—p. 377.

Uncontrollable Vomiting of Pregnancy.—Ruiz Viso reports a case rebellious to all other measures in which the tendency to vomit was arrested at once by one subcutaneous injection of 2 c.c. of the blood serum from a healthy pregnant woman. The injection induced a chill and slight headache, but by the following day the woman was able to retain 1.5 liters of milk and has had no return of the vomiting. Four injections of the serum were made in all, on alternate days. The vomiting had begun twenty days after her last menstruation and had continued into the third month.

Revista de la Asoc. Médica Mexicana, Mexico City

3: 776-825 (April) 1925

*Plasmomas. T. G. Perrin.—p. 778.
*Transvesical Prostatectomy. A. Madrid.—p. 784.
*Spread of Trachoma in Mexico. D. M. Vélez.—p. 787.
Sterilization of Surgeon's Hands. Salvador Martinez Parente.—p. 790.

Plasmoma in Bone.—Perrin reproduces the histologic findings in the tumor which had been diagnosed as an osteosarcoma and the leg had been amputated. The microscopic findings apparently confirmed this assumption of round cell sarcoma, but a microscope with stronger lenses revealed that the tumor was a fibroplasmocytoma. The cells were seen to be Unna plasmocytes (Cajal's cyanophil cells). Under radiotherapy the growth of the neoplasm had been arrested, and there has been no tendency to recurrence or metastasis in the nearly four months since the amputation.

Transvesical Prostatectomy.—Madrid declares that the success of the intervention depends on the preparation for the operation, general hygiene and systematic reduction of the amount of residual urine by catheterization. His experience in forty-six cases seems to indicate that the age of 62 is the upper limit for success. He warns particularly against catheterizing in cases of chronic infected retention; the bladder should be opened and the family should be warned of the danger of accidents as the density of the urine drops and symptoms of uremia appear as the residual urine is suppressed, the kidneys becoming overcongested.

Trachoma in Mexico.—Vélez remarks that trachoma has spread alarmingly through the states of Sonora, Sinaloa, Nayarit and Colima, imported by Chinese immigrants to the Pacific Coast. He urges the necessity for checking or restricting the immigration of Chinese, careful inspection of all the schools in the affected regions, with house to house search for all cases of trachoma, and isolation, especially of the children.

Revista de Medicina y Cirugía, Havana

30: 323-348 (June 10) 1925

*Chronic Stenosis of the Duodenum. Elpidio Stincer.—p. 329.
*Borax Treatment of Chorea. Manuel Galigarcía.—p. 336.

Chronic Stenosis of the Duodenum.—Stincer describes three cases of chronic obstruction by the root of the mesentery. The clinical picture includes vomiting, pain and tension in the epigastrium, with constipation or diarrhea. The alternations of severe symptoms and absolute relief are characteristic; also the attenuation of the symptoms in the knee-chest position, and the immediate disappearance of all disturbances after duodenojejunostomy. The pain has no relation to the meals, and is not modified by alkalies. In Stincer's three cases the disturbances were of several months' to five years' standing.

Chorea Improved by Boric Acid Salts.—Galigarcía reports the cure of a boy of 12 with severe chorea minor which had developed in school and had resisted all treatment for months. The boy was isolated, given a tepid bath three times a day, and 2 gm. of sodium borate daily. By the end of the week there was marked improvement, and a complete cure by the twenty-second day.

Semana Médica, Buenos Aires

1: 1369-1424 (June 25) 1925

Disturbances in the External Movements of the Eyes. Adrogué.—p. 1369.
*Cystic Epithelioma of the Breast. M. L. Pérez and A. Jakob.—p. 1398.
*Sarcoma of the Mesentery. P. de Elizalde and J. Medeiros.—p. 1405.

Cystic Epithelioma of the Breast.—Pérez and Jakob state that the giant cystic growth had developed after a trauma over a year before. The tumor grew very rapidly; the cavity of the cyst contained 4 kg. of fluid. Jacoulet in 1911 had been able to find only thirty-seven cases of cystic epithelioma of the breast on record. The tumor seems to be between the benign and malignant growths, but they advise treatment on the basis of cancer.

Sarcoma of the Mesentery in an Infant.—One of the features of the case was the lack of influence on the general health, the tumor being discovered during a casual examination for a slight infectious process. The 12 months' infant died at the exploratory operation which revealed the sarcoma of the mesentery.

Siglo Médico, Madrid

75: 549-576 (May 30) 1925

*Hyperpyrexias. A. Morales.—p. 549.
Study of Inspiration and the Subconscious. P. Luengo Marcos.—p. 550.
The Insane Who Seem Sane. F. Huertas del Campillo.—p. 552.
*Leprosy in Spain. Mauro Guillén.—p. 553.
Treatment of Industrial Accidents. Slocker.—p. 554.

Hyperpyrexia.—Morales refers to some cases in his own experience in which the temperature reached 40 and 42 C. As long as the consciousness is intact he explains these fevers as exaggerated reflex action, of possibly hysteric nature. He has found that in cases of traumatic shock, unless the temperature rises after the application of boiling ether (at 41 C.) there is no hope of reviving the patient, the functions of the heat-producing centers being evidently totally abolished. This hot ether artificial pyrexia is thus a valuable aid in the indications for operations in dubious cases.

Leprosy in Spain.—Guillén states that besides the foci of leprosy in the Canary Islands there are three principal foci in Galicia, Andalucia and Levante, the latter including part of Valencia up to Barcelona. This district has a leper colony, and others are planned for Galicia and Andalucia. Segregation of lepers is not compulsory in Spain.

76: 53-76 (July 18) 1925

*Glandular Reactions in Malta Fever. F. Rodríguez de Partearroyo.—p. 53.
Visceral Manifestations of Cardiac Insufficiency. Gonzalo.—p. 56.
Consolidation of a Comminuted Fracture. Slocker.—p. 57.

Glandular Reactions in Malta Fever. — Rodríguez has encountered an early and a tardy type of glandular involvement in Malta fever, both are generally extremely painful, spontaneously and on pressure. One of his co-workers at the laboratory got a drop of an emulsion of the micrococcus on a small wound on his lip. He cleansed the region but did not use any vaccine. Twelve days afterward fever developed, with intense sore throat, and a crisis the seventh day with apparent recovery. Six days later the glands in the neck became very painful and the fever flared up again. In another case of supposed malaria, rebellious to all treatment, there was recurring febrile adenitis. The undulant course gave the clue finally, confirmed by agglutination tests, and the long clinical course was abruptly arrested by vaccine therapy against Malta fever.

Archiv für Gynäkologie, Berlin

124: *689-850 (July 25) 1925*

Birth Traumas. A. Stern.—p. 689.
Prolapse of Diverticulum of the Ureter. E. Pribram.—p. 726.
Fatal Hemorrhage from a Varicose Vein of the Cervix. Wieloch.—p. 733.
The Lipoid Content of the Corpus Luteum. Hermstein.—p. 739.
Cancer, Ovary and Placenta. O. O. Fellner.—p. 771.
Uterine Endotheliomas. K. Ulesco-Stroganowa.—p. 802.
Social Factors in the Pathogenesis of Ptosis of the Genital Organs. N. A. Spiegel.—p. 823.
Cancer and Pregnancy. H. Edelberg and J. S. Galant.—p. 833.

Archiv für klinische Chirurgie, Berlin

136: *427-626 (July 25) 1925*

*Periarterial Sympathectomy. E. Melzner.—p. 427.
Phlegmon of the Intestines. Bundschuh and Wolff.—p. 438.
Ulcers of the Small Intestine. M. Grasmann.—p. 449.
Operative Technic for Rectal Cancers. F. Mandl.—p. 479.
*Paravertebral Anesthesia in Angina Pectoris. F. Mandl.—p. 495.
Separation of the Radius Epiphysis. R. Maier.—p. 519.
Traumatic Epilepsy. W. N. Rosanoff.—p. 527.
The Fate of Bone Transplants. A. Wereschinski.—p. 545.
*Experimental Studies on Gastro-Enterostomy. G. Kopyloff.—p. 568.
The Prevention of Peritoneal Adhesions. P. Rostock.—p. 589.

Experimental Studies in Periarterial Sympathectomy.—Melzner performed this operation successfully on one renal artery in five dogs in order to study the histologic changes which may follow the alleged dilatation of the artery. The kidneys were examined and compared with the control kidney, three, fourteen, thirty-five, fifty-six and seventy days after the operation. In no case could he detect any histologic difference between the operated and the nonoperated kidney. The author believes that these experiments show that periarterial sympathectomy cannot lead to a vasodilatation.

Paravertebral Injection of an Anesthetic in Treatment of Angina Pectoris.—This method of treatment always arrests the acute attack, and has frequently a prolonged beneficial effect. If a recurrence takes place after a period of improvement, the cutting of the rami communicantes, according to Gaza's suggestion, may be considered. Mandl emphasizes the importance of a proper technic and of the choice of the proper segments.

Gastro-Enterostomy.—Kopyloff draws the following conclusions from his experimental work on dogs: A separate suture of the mucosa insures a permanent large opening; if no separate suture for the mucosa is made, the opening tends to shrink. If the mucous membranes are cut with the cautery, the inflammatory reaction is more pronounced than after the use of knife and scissors. An artificial narrowing of the pylorus or the performance of Braun's entero-anastomosis does not influence the shape of the anastomosis. Silk causes local inflammations, and may result in defects. Lembert's seroserosa suture gave the best results. Catgut may be found unabsorbed as long as four months after the operation; it is the ideal material for suturing the intestinal tract.

Deutsche medizinische Wochenschrift, Leipzig

51: 1265-1304 (July 31) 1925

Endocrine Disturbances in Gynecology. Benthin.—p. 1265.
*Salt and Water Obesity. H. Zondek.—p. 1267.
*Hyperplasia of the Parathyroids in Skeletal Disease. F. Kerl.—p. 1271.
A Case of Atypical Leukocytosis. W. Schober and H. Opitz.—p. 1273.
Preservation of Sheep Cells for Complement Fixation. C. Sonnenschein.—p. 1276.
The Innervation of the Gastrocnemius Muscle. de Boer.—p. 1278.
Diazo Test and Pulmonary Tuberculosis. M. Weiss.—p. 1278.
A Case of Recurrent Herpes Zoster. W. Richter.—p. 1279.
Treatment of Lupus Vulgaris with Ignipuncture. Kromayer.—p. 1281.
Castration in Hysteria. A. Kutzinski.—p. 1282.
Pyloroscopy with a Cystoscope. W. Sternberg.—p. 1283.
Endoscopes. H. Haebler.—p. 1283.
Stand That Screws to the Bed for the Infusion Apparatus. Müller.—p. 1284.
Infectious Diseases. O. Moog.—p. 1285. Conc'n.
Physical Training from the Medical Standpoint. W. Weisbach.—p. 1288.
Medical Science of Physical Training. Reinheimer.—p. 1289.
Nostrums. Zernik.—p. 1289.

Salt and Water Obesity.—Zondek describes this pathologic condition in the following way: The fat deposits develop in a relatively short period of time; the temperature of the patient is labile and tends to subfebrile values; oliguria is frequently present, sometimes combined with pathologically increased thirst; the basal metabolism is normal or increased; functional tests demonstrate a tendency to salt and water retention; headaches are frequent and, sometimes, symptoms of intracranial pressure are found. He believes that this type of obesity may be caused either by pituitary disturbances (if roentgenologic evidence is found), or by cerebral processes, or by disturbances in the peripheral tissues, the physical-chemical condition of which prevents the proper action of hormones. A restricted diet does not yield any results in these patients, but restriction of water and of salt and stimulation of diuresis are effective. The administration of thymus or thyroid substance has a strongly reducing effect.

Hyperplasia of the Parathyroids.—Kerl reports one case of extreme osteomalacia and one case of osteoporosis, in each of which the parathyroids were markedly hyperplastic, and contained foci of granulations (*Wucherungsherde*), as described by Erdheim. The author believes that the histologic changes in the parathyroids are secondary to the skeletal diseases. No pathologic changes were found in any other endocrine glands.

Klinische Wochenschrift, Berlin

4: 1481-1528 (July 30) 1925

Immunity and Nourishment in Childhood. L. F. Meyer.—p. 1481.
The Development of Leukocytes and Endothelial Cells in Inflammation and in Cultures. A. Maximow.—p. 1486.
Endocrine Antagonism. H. Zondek and H. Bernhardt.—p. 1488.
Arsphenamin-Bismuth and Arsphenamin-Mercury. Smechula.—p. 1493.
*The Specific Dynamic Action of Proteins. R. Dürr.—p. 1496.
*Treatment of Tetanus with Glucose. Jadassohn and Streit.—p. 1498.
Vasomotor Disturbances in Epidemic Encephalitis. Büchler.—p. 1503.
Melanin-Like Substances. B. Brahn.—p. 1502.
The Estimation of Lactic Acid in the Blood. Sluiter.—p. 1502.
Microtest for Lactic Acid in the Blood. Mendel and Goldscheider.—p. 1502. Correction, p. 1576.
Standardization of Pituitary Extracts. Kochmann and Wagner.—p. 1503.
Chronic Joint Disease. H. Assmann.—p. 1504.
The P_H-Balance in Epilepsy. H. Vollmer.—p. 1508.
To Facilitate Palpation of the Abdomen. E. v. Rutich.—p. 1526.
Statistics of Morbidity in Germany. Freudenberg.—p. 1526.

The Specific Dynamic Action of Proteins.—Dürr emphasizes the importance of prolonging tests for the specific dynamic action of proteins to at least six hours, because some patients have a delayed, but quantitatively normal, reaction, which would be considered subnormal if the test were not conducted long enough. According to his studies, Plaut's theory, that a subnormal value is charac disturbances, is not correct.

Tetanus Treatment with Glucose.—Jada observed in two patients that glucose inje favorable influence on the symptoms of examined tetanic rabbits and found no hy very considerable reduction of the glycogen in the centra nervous system. Glucose injections did not prolong the li of rabbits inoculated with tetanus, but the authors belie that the reduction in glycogen in the nervous system ma explain their clinical observations, and that glucose injection should be tried more in tetanus.

4: 1529-1576 (Aug. 6) 1925

- *Sympathetic Ophthalmia. A. Peters.—p. 1529.
- *Roentgen-Ray Studies on the Bronchi. R. Lenk and F. Hasling— p. 1533.
- Electrocardiogram. E. Mosler and H. Sachs.—p. 1535.
- Histologic Studies on the Central Nervous System. W. Weima— p. 1537.
- *Blood Sugar and Cancer. A. Foerster and A. Forster.—p. 1540
- The Motility of the Fallopian Tubes. F. Kok.—p. 1543.
- A Characteristic Symptom of Acromegaly. F. Herzog.—p. 1545
- Unusual Findings in Colon Bacillus Septicemia. H. Simon.—p. 15
- A Simplified Respiratory Apparatus H. Schadow.—p. 1548.
- The Sympathetic Nerve in Tetanic Spasms. R. Golant-Ratner.—p
- The Physiology of the Pituitary. K. Fromherz.—p. 1551.
- Blood Sugar After Ligature of Pancreatic Duct. Alpern and Lentes— p. 1551.
- Insulin in Spasmophilia in Infants. A. Adam.—p. 1551.
- The Nature of the Eosinophilic Granula. A. Neumann.—p. 1552.
- A Case of Narcolepsy. P. Hilpert.—p. 1553.
- Chronic Arthritis. II. H. Assmann.—p. 1554. Conc'n.
- The Culture of Science. F. Haber.—p 1559.
- Thomas Mann's Novel, "Zauberberg." H. Ulrici.—p. 1575.

Sympathetic Ophthalmia.—Peters believes that any explanation of this phenomenon, that is based merely on exogenous infection, is unsatisfactory. He thinks that Meller's theory, which emphasizes the importance of an endogenous infection, promises more for the solution of the problem. The fact that the whole clinical appearance of the condition resembles very much ocular tuberculosis, suggests the possibility that the causative micro-organism (if there is a living virus at all) must be very similar to the tubercle bacillus in its biologic qualities.

Radiology of the Bronchi.—Lenk and Haslinger examined the roentgen-ray pictures of patients after intratracheal administration of contrasting iodin-containing oil. They found that, if the oil reaches the alveoli, pictures may result which simulate bronchiectasis. A differentiation is possible only by fluoroscopic methods. Oil which reaches the alveoli is not expectorated, but is very slowly resorbed. The oil has a tendency to accumulate at the margins of the lung.

The Blood Sugar in Cancer.—Foerster and F exam-ined the blood sugar variations in cancer the ingestion of glucose. Friedenwald and Grove that the blood sugar values in cancer patients s teristic deviation from normal individuals. The sub-stantiated the finding of the American work they emphasize that the "cancer-curve" may be f in other conditions, such as in cachexia, in benign of the pylorus, in cholelithiasis and in the elderly.

Medizinische Klinik, Berlin

21: 1107-1144 (July 24) 1925

- Death from Heart Failure in Pregnant Women. G. A. W
- Beriberi and Experimental Avitaminosis S Gräff.—p. 11
- Treatment of Congenital Syphilis with Bismuth. E.
- Insulin and Water Balance. O. Klein —p 1116.
- *Perforated Peptic Ulcers. R. Stohr.—p. 1120
- Pleurisy with Effusion in Children. J v. Lukács.—p. 1122.
- Protoplasma Activation in Atrophy of the Optic Nerve.
- Organotherapy in Diabetes Insipidus. V Kamukštis.—p.
- Identical Twins. E. Loewy.—p. 1125.
- Singultus Following Influenza. Grothusen.—p 1126.
- Metabolic Studies. B. Süsskind.—p. 1126.
- Medical Psychology. H. Ferdel.—p 1129. Conc'n.
- Orthopedic Disease of the Knee Joint. S. Peltesohn.—p. 11

Perforated Peptic Ulcer.—It is of the utmost i to diagnose the perforation of a peptic ulcer as ear sible. The method of choice in the treatment is the of the ulcer, including the pylorus and antrum, an the stumps, according to Billroth's first method. If

Trea tha reg oil grow gor num app ascer treat

Art of s made it at of bl into cocci, In ev

Bea

shows the possible correlation of pruritus al conditions as causative factors, as well as ologic problems appearing in the treatment. 's interesting study of the neural connections misreference of symptoms to the anus from ns is suggestive of the equal possibility same connections of a reverse misreference, ore explanatory of some gastro-enterologic l medical symptoms, which have been found with proctologic treatment.

NEUROLOGY

ht think of neurology as one of the less likely et no class of symptoms, unless it be genito-roduces more profound effects on the ner-mental condition of the patient than does discomfort. The hypersensitiveness of the region has already been mentioned, and we y proofs of the results produced through nnections. I am constantly seeing patients degree of neurasthenia which is traceable eric hypertension and spasm, in whom sys-lation of the anus, and in the more extreme sion, gives prompt relief. Such an instance of a clergyman with an ensemble of nervous cal symptoms nearly incapacitating him from n to his work. This was coupled with a vague stent tenesmus, and he was speedily and lieved by dilation. The sphincteric spasticity zing pain growing out of a tiny anal fissure an aggravated form of the same thing. This not recognized by the general practitioner, d to almost suicidal mania. Rarely neuro-ts come from proctologic disease conditions her than neural connections. Illustrative of e case of a club restaurant waiter, who had a spasticataxic gait, general myoclonus and toms involving both lower extremities. He xamined by an excellent neurologist, who transverse myelitis involving the cord up of the fourth sacral roots, and felt that, in other apparent cause, it was in some way tory which the patient gave of prolonged at the time of the inception of the neural was asked to examine him and found l hemorrhoids, on which I did a radical had been in a serious condition, but ediate improvement and eventual com- The neurologist has reported the case ne rarity, and his conclusion was that were probably nutritional, the result moses between the hemorrhoidal and ems, and blocking of the latter by mer; or possibly of infection trans-same channel. It would seem that hardly be gainsaid.

TUBERCULOSIS

anorectal abscess and fistula to other tuberculous processes is well atoriums for the tuberculous, the coun- poor records of their proctologic com- too little attention to them, and do not ents the relief from them which a good d give. The fear which the authorities g with such complications is entirely

not gone afield own expe- s been said, proctologist has found that in cases of traumatic shock, unless the temperature rises after the application of boiling ether (at 41 C.) there is no hope of reviving the patient, the functions of the heat-producing centers being evidently totally abolished. This hot ether artificial pyrexia is thus a valuable aid in the indications for operations in dubious cases.

Leprosy in Spain.—Guillén states that besides the foci of leprosy in the Canary Islands there are three principal foci in Galicia, Andalucia and Levante, the latter including part of Valencia up to Barcelona. This district has a leper colony, and others are planned for Galicia and Andalucia. Segregation of lepers is not compulsory in Spain.

76: 53-76 (July 18) 1925

*Glandular Reactions in Malta Fever. F. Rodríguez de Partearroyo.—p. 53.
Visceral Manifestations of Cardiac Insufficiency. Gonzalo.—p. 56.
Consolidation of a Comminuted Fracture. Slocker.—p. 57.

Glandular Reactions in Malta Fever. — Rodríguez has encountered an early and a tardy type of glandular involvement in Malta fever, both are generally extremely painful, spontaneously and on pressure. One of his co-workers at the laboratory got a drop of an emulsion of the micrococcus on a small wound on his lip. He cleansed the region but did not use any vaccine. Twelve days afterward fever developed, with intense sore throat, and a crisis the seventh day with apparent recovery. Six days later the glands in the neck became very painful and the fever flared up again. In another case of supposed malaria, rebellious to all treatment, there was recurring febrile adenitis. The undulant course gave the clue finally, confirmed by agglutination tests, and the long clinical course was abruptly arrested by vaccine therapy against Malta fever.

Archiv für Gynäkologie, Berlin

124: 689-850 (July 25) 1925

Birth Traumas. A. Stern.—p. 689.
Prolapse of Diverticulum of the Ureter. E. Pribram.—p. 726.
Fatal Hemorrhage from a Varicose Vein of the Cervix. Wieloch.—p. 733.
The Lipoid Content of the Corpus Luteum. Hermstein.—p. 739.
Cancer, Ovary and Placenta. O. O. Fellner.—p. 771.
Uterine Endotheliomas. K. Ulesco-Stroganowa.—p. 802.
Social Factors in the Pathogenesis of Ptosis of the Genital Organs. N. A. Spiegel.—p. 823.
Cancer and Pregnancy. H. Edelberg and J. S. Galant.—p. 833.

Archiv für klinische Chirurgie, Berlin

136: 427-626 (July 25) 1925

*Periarterial Sympathectomy. E. Melzner.—p. 427.
Phlegmon of the Intestines. Bundschuh and Wolff.—p. 438.
Ulcers of the Small Intestine. M. Grasmann.—p. 449.
Operative Technic for Rectal Cancers. F. Mandl.—p. 479.
*Paravertebral Anesthesia in Angina Pectoris. F. Mandl.—p. 495.
Separation of the Radius Epiphysis. R. Maier.—p. 519.
Traumatic Epilepsy. W. N. Rosanoff.—p. 527.
The Fate of Bone Transplants. A. Wereschinski.—p. 545.
*Experimental Studies on Gastro-Enterostomy. G. Kopyloff.—p. 568.
The Prevention of Peritoneal Adhesions. P. Rostock.—p. 589.

Experimental Studies in Periarterial Sympathectomy. — Melzner performed this operation successfully on one renal artery in five dogs in order to study the histologic changes which may follow the alleged dilatation of the artery. The kidneys were examined and compared with the control kidney, three, fourteen, thirty-five, fifty-six and seventy days after the operation. In no case could he detect any histologic difference between the operated and the nonoperated kidney. The author believes that these experiments show that periarterial sympathectomy cannot lead to a vasodilatation.

Paravertebral Injection of an Anesthetic in Treatment of Angina Pectoris.—This method of treatment always arrests the acute attack, and has frequently a prolonged beneficial effect. If a recurrence takes place after a period of improvement, the cutting of the rami communicantes, according to Gaza's suggestion, may be considered. Mandl emphasizes the importance of a proper technic and of the choice of the proper segments.

Gastro-Enterostomy.—Kopyloff draws the following conclusions from his experimental work on dogs: A separate suture of the mucosa insures a permanent large opening; if no separate suture for the mucosa is made, the opening tends to shrink. If the mucous membranes are cut with the cautery, the inflammatory reaction is more pronounced than after the use of knife and scissors. An artificial narrowing of the pylorus or the performance of Braun's entero-anastomosis does not influence the shape of the anastomosis. Silk causes local inflammations, and may result in defects. Lembert's seroserosa suture gave the best results. Catgut may be found unabsorbed as long as four months after the operation; it is the ideal material for suturing the intestinal tract.

Deutsche medizinische Wochenschrift, Leipzig

51: 1265-1304 (July 31) 1925

Endocrine Disturbances in Gynecology. Benthin.—p. 1265.
*Salt and Water Obesity. H. Zondek.—p. 1267.
*Hyperplasia of the Parathyroids in Skeletal Disease. F. Kerl.—p. 1271.
A Case of Atypical Leukocytosis. W. Schober and H. Opitz.—p. 1273.
Preservation of Sheep Cells for Complement Fixation. C. Sonnenschein.—p. 1276.
The Innervation of the Gastrocnemius Muscle. de Boer.—p. 1278.
Diazo Test and Pulmonary Tuberculosis. M. Weiss.—p. 1278.
A Case of Recurrent Herpes Zoster. W. Richter.—p. 1279.
Treatment of Lupus Vulgaris with Ignipuncture. Kromayer.—p. 1281.
Castration in Hysteria. A. Kutzinski.—p. 1282.
Pyloroscopy with a Cystoscope. W. Sternberg.—p. 1283.
Endoscopes. H. Haebler.—p. 1283.
Stand That Screws to the Bed for the Infusion Apparatus. Müller.—p. 1284.
Infectious Diseases. O. Moog.—p. 1285. Conc'n.
Physical Training from the Medical Standpoint. W. Weisbach.—p. 1288.
Medical Science of Physical Training. Reinheimer.—p. 1289.
Nostrums. Zernik.—p. 1289.

Salt and Water Obesity.—Zondek describes this pathologic condition in the following way: The fat deposits develop in a relatively short period of time; the temperature of the patient is labile and tends to subfebrile values; oliguria is frequently present, sometimes combined with pathologically increased thirst; the basal metabolism is normal or increased; functional tests demonstrate a tendency to salt and water retention; headaches are frequent and, sometimes, symptoms of intracranial pressure are found. He believes that this type of obesity may be caused either by pituitary disturbances (if roentgenologic evidence is found), or by cerebral processes, or by disturbances in the peripheral tissues, the physical-chemical condition of which prevents the proper action of hormones. A restricted diet does not yield any results in these patients, but restriction of water and of salt and stimulation of diuresis are effective. The administration of thymus or thyroid substance has a strongly reducing effect.

Hyperplasia of the Parathyroids.—Kerl reports one case of extreme osteomalacia and one case of osteoporosis, in each of which the parathyroids were markedly hyperplastic, and contained foci of granulations (*Wucherungsherde*), as described by Erdheim. The author believes that the histologic changes in the parathyroids are secondary to the skeletal diseases. No pathologic changes were found in any other endocrine glands.

Klinische Wochenschrift, Berlin

4: 1481-1528 (July 30) 1925

Immunity and Nourishment in Childhood. L. F. Meyer.—p. 1481.
The Development of Leukocytes and Endothelial Cells in Inflammation and in Cultures. A. Maximow.—p. 1486.
Endocrine Antagonism. H. Zondek and H. Bernhardt.—p. 1488.
Arsphenamin-Bismuth and Arsphenamin-Mercury. Smechula.—p. 1493
*The Specific Dynamic Action of Proteins. R. Dürr.—p. 1496.
*Treatment of Tetanus with Glucose. Jadassohn and Streit.—p. 1498.
Vasomotor Disturbances in Epidemic Encephalitis. Buchler.—p. 1500.
Melanin-Like Substances. B. Brahn.—p. 1502.
The Estimation of Lactic Acid in the Blood. Sluiter.—p. 1502.
Microtest for Lactic Acid in the Blood. Mendel and Goldscheider.—p. 1502. Correction, p. 1576.
Standardization of Pituitary Extracts. Kochmann and Wagner.—p. 1503.
Chronic Joint Disease. H. Assmann.—p. 1504.
The *P*H-Balance in Epilepsy. H. Vollmer.—p. 1508.
To Facilitate Palpation of the Abdomen. E. v. Rutich.—p. 1526.
Statistics of Morbidity in Germany. Freudenberg.—p. 1526.

The Specific Dynamic Action of Proteins.—Dürr emphasizes the importance of prolonging tests for the specific dynamic action of proteins to at least six hours, because some patients have a delayed, but quantitatively normal, reaction, which would be considered subnormal if the test were not conducted long enough. According to his studies, Plaut's anus undoubtedly opened the way for infection, leading to one of the worst ischiorectal abscesses it has ever been my fortune to handle; and such trauma is not so rare, though the effects may not be so serious.

PEDIATRICS

Pediatric proctology is not a large field, but the diseases that come under this heading are important. This is true of the fairly common imperforate anus, and congenital rectovaginal fistula, both notoriously difficult and unsatisfactory for operation; and more true of the very common anorectal prolapse in children, in which the necessity for operation is in direct ratio to the ignorance and poverty of the parents. My clinic work has brought me considerable of this, and taught me that the simplest, as well as harmless, operation of introducing a bronze wire sphincter about the anus brings the best result and avoids the fussy care necessary to obtain a cure without it and almost impossible among the poor. The wire may remain for months and has to be removed eventually, but the prolapse is then cured, and the pediatrician has been saved a deal of worry.

ORTHOPEDICS

I have been so situated that I have seen perhaps more than my share of the possible correlation of proctology with orthopedics. Some years ago, a case was referred to me, which, so far as I know, is the only one of the kind that has ever been reported. A young man with chronic tuberculous hip disease had developed a most complicated anorectal fistula. Stereoscopic roentgenographic studies of the sinuses with bismuth paste demonstrated that a septic process had started from the anterior surface of the joint capsule, followed the sheath of the iliopsoas upward under Poupart's ligament into the iliac fossa, there forming an abscess; had then gravitated downward above the levator and ruptured into the rectal ampulla, and had also penetrated the levator, traversed the ischiorectal fossa and ruptured externally. Though this had been the course of the original infection to the rectum, it was my suspicion that a retrograde infection from that organ, through the same sinuses, was keeping up the hip disease; and this suspicion was apparently confirmed by the fact that operation on and cure of the proctologic condition cleared up for good the orthopedic condition. Another exactly similar case, with the same result, has been under my care within the last two years. Another illustrative case is that of a lawyer with a definite arthritis of the lumbar spine and some vague rectal symptoms, which proved to be due to a small blind internal fistula. Drainage of this promptly put a stop to the spinal disease, a plain case of focal infection. Furthermore, the course of chronic backache, so ften puzzling as to etiology, is frequently to be found rectal and intestinal conditions, and corrected by rrection of them.

DERMATOLOGY

he relation of proctology to dermatology becomes rent sometimes in venereal manifestations, but commonly in pruritus ani. Patients with the lat- ck both the dermatologist and the proctologist, ave obtained the best results in this most obsti- sometimes almost crazing, form of itching e work with dermatologists. When proc- ds, topical, surgical and other, have failed, ve succeeded, and vice versa. In this must not overlook the elaborate study ade in a monograph published a year ago, which shows the possible correlation of pruritus with visceral conditions as causative factors, as well as the dermatologic problems appearing in the treatment. The author's interesting study of the neural connections which allow misreference of symptoms to the anus from other organs is suggestive of the equal possibility through the same connections of a reverse misreference, and therefore explanatory of some gastro-enterologic and general medical symptoms, which have been found to clear up with proctologic treatment.

NEUROLOGY

We might think of neurology as one of the less likely relations, yet no class of symptoms, unless it be genito-urinary, produces more profound effects on the nervous and mental condition of the patient than does proctologic discomfort. The hypersensitiveness of the anorectal region has already been mentioned, and we have many proofs of the results produced through neural connections. I am constantly seeing patients with some degree of neurasthenia which is traceable to sphincteric hypertension and spasm, in whom systematic dilation of the anus, and in the more extreme cases incision, gives prompt relief. Such an instance was that of a clergyman with an ensemble of nervous and physical symptoms nearly incapacitating him from application to his work. This was coupled with a vague but persistent tenesmus, and he was speedily and entirely relieved by dilation. The sphincteric spasticity and agonizing pain growing out of a tiny anal fissure is merely an aggravated form of the same thing. This is often not recognized by the general practitioner, and has led to almost suicidal mania. Rarely neurologic results come from proctologic disease conditions through other than neural connections. Illustrative of this was the case of a club restaurant waiter, who had developed a spasticataxic gait, general myoclonus and other symptoms involving both lower extremities. He had been examined by an excellent neurologist, who diagnosed a transverse myelitis involving the cord up to the level of the fourth sacral roots, and felt that, in the lack of other apparent cause, it was in some way due to a history which the patient gave of prolonged anal bleeding at the time of the inception of the neural symptoms. I was asked to examine him and found marked internal hemorrhoids, on which I did a radical operation. He had been in a serious condition, but there was immediate improvement and eventual complete recovery. The neurologist has reported the case as one of extreme rarity, and his conclusion was that the cord changes were probably nutritional, the result of the free anastomoses between the hemorrhoidal and spinal venous systems, and blocking of the latter by emboli from the former; or possibly of infection transmitted through the same channel. It would seem that this conclusion can hardly be gainsaid.

TUBERCULOSIS

The relation of anorectal abscess and fistula to pulmonary and other tuberculous processes is well recognized. Sanatoriums for the tuberculous, the country over, keep poor records of their proctologic complications, pay too little attention to them, and do not give their patients the relief from them which a good proctologist could give. The fear which the authorities have of meddling with such complications is entirely unjustified.

I have purposely not gone afield from my own experiences in what has been said, for every proctologist anus undoubtedly opened the way for infection, leading to one of the worst ischiorectal abscesses it has ever been my fortune to handle; and such trauma is not so rare, though the effects may not be so serious.

PEDIATRICS

Pediatric proctology is not a large field, but the diseases that come under this heading are important. This is true of the fairly common imperforate anus, and congenital rectovaginal fistula, both notoriously difficult and unsatisfactory for operation; and more true of the very common anorectal prolapse in children, in which the necessity for operation is in direct ratio to the ignorance and poverty of the parents. My clinic work has brought me considerable of this, and taught me that the simplest, as well as harmless, operation of introducing a bronze wire sphincter about the anus brings the best result and avoids the fussy care necessary to obtain a cure without it and almost impossible among the poor. The wire may remain for months and has to be removed eventually, but the prolapse is then cured, and the pediatrician has been saved a deal of worry.

ORTHOPEDICS

I have been so situated that I have seen perhaps more than my share of the possible correlation of proctology with orthopedics. Some years ago, a case was referred to me, which, so far as I know, is the only one of the kind that has ever been reported. A young man with chronic tuberculous hip disease had developed a most complicated anorectal fistula. Stereoscopic roentgenographic studies of the sinuses with bismuth paste demonstrated that a septic process had started from the anterior surface of the joint capsule, followed the sheath of the iliopsoas upward under Poupart's ligament into the iliac fossa, there forming an abscess; had then gravitated downward above the levator and ruptured into the rectal ampulla, and had also penetrated the levator, traversed the ischiorectal fossa and ruptured externally. Though this had been the course of the original infection to the rectum, it was my suspicion that a retrograde infection from that organ, through the same sinuses, was keeping up the hip disease; and this suspicion was apparently confirmed by the fact that operation on and cure of the proctologic condition cleared up for good the orthopedic condition. Another exactly similar case, with the same result, has been under my care within the last two years. Another illustrative case is that of a lawyer with a definite arthritis of the lumbar spine and some vague rectal symptoms, which proved to be due to a small blind internal fistula. Drainage of this promptly put a stop to the spinal disease, a plain case of focal infection. Furthermore, the course of chronic backache, so often puzzling as to etiology, is frequently to be found in rectal and intestinal conditions, and corrected by correction of them.

DERMATOLOGY

The relation of proctology to dermatology becomes apparent sometimes in venereal manifestations, but most commonly in pruritus ani. Patients with the latter seek both the dermatologist and the proctologist, and I have obtained the best results in this most obstinate, and sometimes almost crazing, form of itching by cooperative work with dermatologists. When proctologic methods, topical, surgical and other, have failed, theirs often have succeeded, and vice versa. In this connection one must not overlook the elaborate study of this disease, made in a monograph published a year ago, which shows the possible correlation of pruritus with visceral conditions as causative factors, as well as the dermatologic problems appearing in the treatment. The author's interesting study of the neural connections which allow misreference of symptoms to the anus from other organs is suggestive of the equal possibility through the same connections of a reverse misreference, and therefore explanatory of some gastro-enterologic and general medical symptoms, which have been found to clear up with proctologic treatment.

NEUROLOGY

We might think of neurology as one of the less likely relations, yet no class of symptoms, unless it be genito-urinary, produces more profound effects on the nervous and mental condition of the patient than does proctologic discomfort. The hypersensitiveness of the anorectal region has already been mentioned, and we have many proofs of the results produced through neural connections. I am constantly seeing patients with some degree of neurasthenia which is traceable to sphincteric hypertension and spasm, in whom systematic dilation of the anus, and in the more extreme cases incision, gives prompt relief. Such an instance was that of a clergyman with an ensemble of nervous and physical symptoms nearly incapacitating him from application to his work. This was coupled with a vague but persistent tenesmus, and he was speedily and entirely relieved by dilation. The sphincteric spasticity and agonizing pain growing out of a tiny anal fissure is merely an aggravated form of the same thing. This is often not recognized by the general practitioner, and has led to almost suicidal mania. Rarely neurologic results come from proctologic disease conditions through other than neural connections. Illustrative of this was the case of a club restaurant waiter, who had developed a spasticataxic gait, general myoclonus and other symptoms involving both lower extremities. He had been examined by an excellent neurologist, who diagnosed a transverse myelitis involving the cord up to the level of the fourth sacral roots, and felt that, in the lack of other apparent cause, it was in some way due to a history which the patient gave of prolonged anal bleeding at the time of the inception of the neural symptoms. I was asked to examine him and found marked internal hemorrhoids, on which I did a radical operation. He had been in a serious condition, but there was immediate improvement and eventual complete recovery. The neurologist has reported the case as one of extreme rarity, and his conclusion was that the cord changes were probably nutritional, the result of the free anastomoses between the hemorrhoidal and spinal venous systems, and blocking of the latter by emboli from the former; or possibly of infection transmitted through the same channel. It would seem that this conclusion can hardly be gainsaid.

TUBERCULOSIS

The relation of anorectal abscess and fistula to pulmonary and other tuberculous processes is well recognized. Sanatoriums for the tuberculous, the country over, keep poor records of their proctologic complications, pay too little attention to them, and do not give their patients the relief from them which a good proctologist could give. The fear which the authorities have of meddling with such complications is entirely unjustified.

I have purposely not gone afield from my own experiences in what has been said, for every proctologist has had the same. Much more might have been said in detail and elaborate case reports given, but these have no place in a presiding officer's address. What I have reviewed is, however, enough to call to our minds the intimate correlation of proctology with other specialties, which we do not always associate therewith.

245 Cherry Street.

THE ROSE BENGAL TEST FOR LIVER FUNCTION

STUDIES ON THE RATE OF ELIMINATION FROM THE CIRCULATION IN MAN *

WILLIAM J. KERR, M.D.
G. D. DELPRAT, M.D.; N. N. EPSTEIN, M.D.
AND
MAX DUNIEVITZ, M.D.
SAN FRANCISCO

In a previous paper we[1] suggested the use of rose bengal as a test for total liver function. Further observations have confirmed our earlier conclusions, and lead us to believe that, in rose bengal, we have a dye that has advantages over other dyes, so far studied, in estimating the gross functional capacity of the liver.

The various tests that have been devised for the study of separate functions of the liver have been far from satisfactory. Among these should be included the levulose test for carbohydrate function; urobilinogen tests in the urine; fibrinogen tests of the blood; determinations of the lipolytic and fibrinolytic ferments of the blood; studies of the protein metabolism, and the hemoclastic test. Recent studies on the bile pigment metabolism suggest that estimations of the bile pigments in the blood serum may be of value when used alone or in conjunction with other tests. The use of such dyes as methylene blue, congo red and indigocarmin as tests for gross function of the liver has been more or less abandoned. Dyes of the phthalein series have been widely studied, but the recent method of Rosenthal[2] in estimating the rate of disappearance of the dye from the blood stream, after intravenous injection, has proved more satisfactory than previous methods. The dye most extensively studied, phenoltetrachlorphthalein, has certain disadvantages, which limit its use. These have been pointed out by Maurer and Gatewood.[3] In an attempt to overcome some of the difficulties, Rosenthal and White[4] recommended the use of bromsulphalein (disodium phenoltetrabromphthaleinsulphonate). This dye is almost entirely eliminated by the liver, but in cases of retention in the blood stream the dye may be eliminated in the urine from traces up to 20 per cent. of the amount injected. It would appear that bromsulphalein is a more satisfactory dye than phenoltetrachlorphthalein.

In an early report, one of us[5] stated the requirements of an ideal type of dye for the study of liver function: (*a*) the dye must be nontoxic; (*b*) it must be a crystalloid (we know that the fate of colloid dyes in the organism is entirely different from that of the diffusible dyes); (*c*) it must be eliminated from the organism by means of the activity of the liver parenchyma cells, and (*d*) it must remain in the circulation for a sufficient length of time to allow determinations of the dye concentration in the blood plasma to be made. All these requirements are fulfilled with the substance rose bengal (diiodotetrachlorfluorescein of the triphenylmethane series). It is nontoxic in large doses. It is a crystalloid and remains in the normal circulation long enough for determinations to be made.

THE DYE

It has been shown by Schmidt[6] of the department of biochemistry, University of California Medical School, that dyes of the fluorescein series (Table 1) that have six or more halogens are eliminated entirely by way of the bile, while those which contain less than six halogens are eliminated by both the urine and the bile. It is also shown that the fluorescein base and the chlorfluorescein dyes cannot, by any known method, be accurately estimated in either bile or urine because of the color of the dyes. In our experience with rose bengal, both experimental and clinical, we have observed only one instance in which the dye appeared in the urine. In this case there was evidence of marked retention in the blood stream, and only a trace appeared in the urine (possibly a contamination).

No evidence of toxicity of the dye was observed in animals with doses of 100 mg. for a dog weighing 18 kg. In our earlier clinical experience, slight general reactions were noted in a few instances. The reasons for these reactions are not clear, as they have not been observed in our later series of cases.

An interesting characteristic of dyes of the triphenylmethane series is photodynamic activity.[7] Hemolysis of red cells may occur in bright sunlight and in our earlier observations interfered with accurate color readings. As a precautionary measure the blood is now collected and kept until after centrifugalization in a subdued light. The patients are also kept in a darkened room for an hour after the test is completed, to prevent any possible danger from exposure to bright sunlight.

TABLE 1.—*Elimination of Fluorescein Dyes*

Dyes Injected	Time of Appearance After Injection	
	Bile	Urine
[illegible]	7-10 minutes	....
[illegible]	10-12 minutes	....
[illegible]	15 minutes	30-40 minutes
Eosin	15 minutes	15 minutes

The technic described below has certain advantages: 1. The patient is subjected to a single puncture of a vein. 2. The actual time of the procedure on the patient is less than ten minutes. 3. The final mathematical result of the test is available in sixty minutes from the time of its commencement. The dye is easy to obtain in bulk; it can be sterilized without chemical change and is inexpensive.

---

* From the Department of Medicine, University of California Medical School.

* Read before the Section on Practice of Medicine at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

* Because of lack of space, this article is abbreviated in THE JOURNAL by the omission of reports of cases. The complete article appears in the Transactions of the Section and in the authors' reprints.

[1] Delprat, G. D.; Epstein, N. N., and Kerr, W. J.: A New Liver Function Test: The Elimination of Rose Bengal when Injected into the Circulation of Human Subjects, Arch. Int. Med. **34**: 533-541 (Oct.) 1924.

[2] Rosenthal, S. M.: J. Pharmacol. & Exper. Therap. **19**: 385 (June) 1922; Phenoltetrachlorphthalein Test for Hepatic Function: Recent Studies, J. A. M. A. **83**: 1049 (Oct. 4) 1924.

[3] Maurer, Siegfried, and Gatewood, L. C.: Phenoltetrachlorphthalein Liver Function Test, J. A. M. A. **84**: 935-939 (March 28) 1925.

[4] Rosenthal, S. M., and White, E. C.: Clinical Application of the Bromsulphalein Test for Hepatic Function, J. A. M. A. **84**: 1112-1114 (April 11) 1925.

[5] Delprat, G. D.: Studies on Liver Function: Rose Bengal Elimination from the Blood as Influenced by Liver Injury, Arch. Int. Med. **32**: 401-410 (Sept.) 1923.

[6] Schmidt, C. L. S.: Personal communication to the authors.

[7] Schmidt, C. L. A., and Norman, G. F.: Protection Afforded to Red Cells Against Hemolysis by Eosin, J. Infect. Dis. **27**: 40 (July) 1920; J. Gen. Physiol. **6**: 681 (July) 1922.

TECHNIC

The technic of injection of the dye and the collection of blood samples is exactly the same as that described in our previous paper. A vein in the cubital fossa is selected, and a sample of blood is withdrawn with a syringe and discharged into a graduated centrifuge tube containing 2 c.c. of a 2 per cent. solution of potassium oxalate. Without the needle being removed from the vein, either 100 or 150 mg. of the dye, in a sterile 1 per cent. physiologic sodium chlorid solution, is injected and the needle washed out by a further injection of 5 or 10 c.c. of the salt solution. The needle is left in the vein, and at exactly two minutes after the injection of the dye a sample of blood (10 c.c.) is withdrawn from the needle, still in situ, into a fresh syringe, and discharged into another graduated centrifuge tube containing 2 c.c. of oxalate solution. The needle is again washed by injecting 5 or 10 c.c. of physiologic sodium chlorid solution, which maneuver prevents the clotting of blood in the needle. At four and eight minutes, respectively, from the time of injection samples of blood are withdrawn and collected in an identical manner. The needle is then withdrawn from the vein in the arm, and the patient is told to remain in the darkened room for an hour. It is our practice to advise the patient that the appearance of the dye in the stools will impart to them a distinct red color, since the unexpected appearance of the red stools may cause considerable alarm.

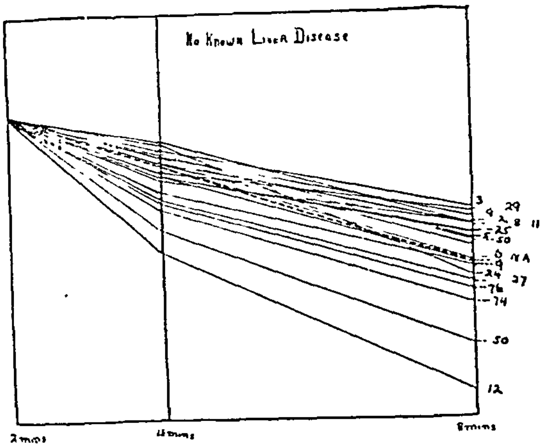


Chart 1.—Curves of patients without known liver disease. The normal average is shown by the broken line.

As soon as possible after collection, the blood samples are centrifugalized at a speed of 2,000 revolutions per minute for thirty minutes. The percentage of cells and plasma in each tube is then carefully noted. From the samples of blood taken at two, four and eight minutes, respectively, after the time of injection, 3 c.c. of plasma is then diluted in separate tubes with an equal volume of physiologic sodium chlorid solution, and the color of the dye in these solutions is compared in a Helling colorimeter, with a standard solution containing 5 c.c. of plasma from the "control tube"; that is, the same amount of blood withdrawn from the vein before the injection of the dye, and 5 c.c. of an 0.0075 per cent. solution of rose bengal. It is evident that an allowance must be made for the fact that the plasma in the graduated centrifuge tube contains 2 c.c. of potassium oxalate solution, and that some correction of the colorimeter reading must be made to allow for this dilution.

For example: After centrifugalization for thirty minutes, the graduated centrifuge tube contained 4.3 c.c. of cells and 7.0 c.c. of supernatant fluid. The colorimeter reading of the plasma was 25 per cent. of the standard (0.0075 per cent. solution). If this plasma did not contain the 2 c.c. of oxalate, the reading would have been twenty-five times 7.0 divided by 5.0. But the dye that is found in the supernatant 5.0 c.c. of plasma was, before centrifugalizing, in the total 9.3 c.c. of blood. Hence the correction of the colorimeter reading, giving the correct percentage of the dye in the blood stream, is represented by $\frac{25 \times 7.0 \times 5.0}{5.0 \times 9.3}$ (which is 18.8) per cent. of the 0.0075 per cent. solution of rose bengal. After these corrections have been made, we obtain what we have termed "corrected colorimeter readings," such as are found in the charts.

Having obtained the concentration of the dye in the blood sample withdrawn two minutes after the injection of the dye and knowing the total amount of the dye injected into the circulation, it is a matter of simple proportion to calculate the blood volume of the person.

To continue the given example: Two minutes after the injection of 100 mg. of dye into the circulation, the concentration of the dye in the blood was 18.8 per cent. of an 0.0075 per cent. solution of the dye, which is 0.00141 per cent. That is, 100 c.c. of blood contains 1.41 mg. of dye. Therefore, the blood volume of the person into whom this injection was made is $\frac{100 \times 100}{1.41}$ c.c., or 7,092 c.c.

This can readily be reduced for convenience in calculation to the following formula, which differs somewhat from the formula of our first paper:

$$\text{Blood volume} = \frac{\text{Milligrams of dye injected} \times \text{volume of blood withdrawn} \times 10^{9}}{\text{Uncorrected colorimeter reading} \times 0.0075 \times \text{centrifuge tube contents less cell volume}}$$

Since we have injected a uniform amount of dye into persons of different weight and therefore of different blood volumes, it follows that the concentration of the dye in the blood samples obtained two minutes after injection should show considerable variation, and that it would be impossible to compare the corrected colorimeter readings of different persons with one another unless these readings were reduced to some arbitrary standard blood volume. The standard blood volume selected arbitrarily and purely for convenience for the purpose of this paper is 7,000 c.c. Thus, in the foregoing the corrected colorimetric reading of the

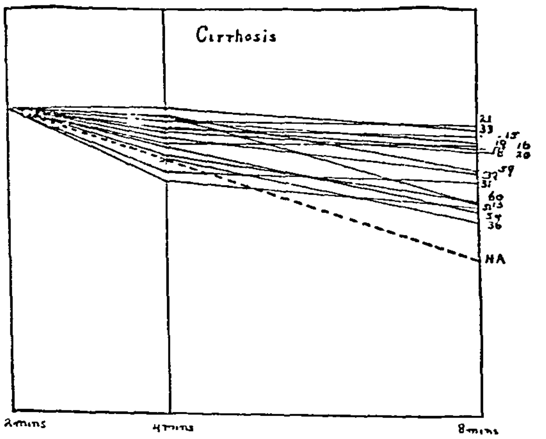


Chart 2.—Curves of patients with suspected or proved cirrhosis of the liver.

"two minute sample" of blood is 18.8 per cent. of a 0.0075 per cent. solution of the dye, from which the blood volume of 7,070 c.c. can be calculated. If, now, we reduce this to our standard blood volume of 7,000 c.c., it is evident that it is necessary to multiply the reading 18.8 by 7,070 and divide the result by 7,000, which gives 19.1 per cent. of 0.0075 per cent. solution. This figure (19.1) is necessarily a mathematical constant, since it expresses the concentration of a fixed amount of dye (100 mg.) injected into a fixed volume (7,000 c.c.).

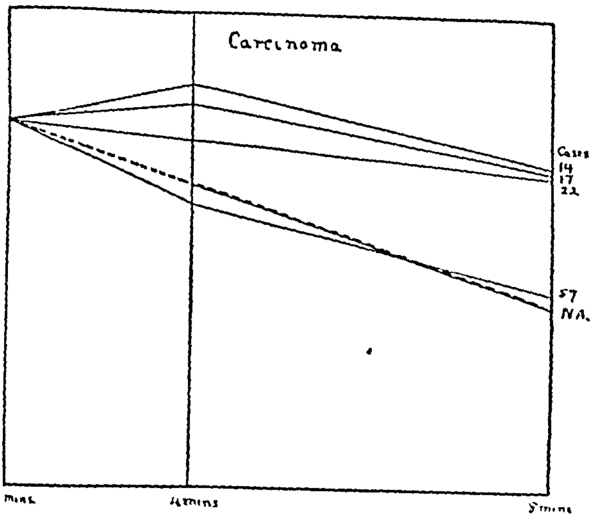


Chart 3.—Carcinoma of the liver or biliary passages.

Occasionally in large persons we have injected 150 mg. of dye instead of 100 mg., in which case we multiply the reading, which has been reduced to the standard blood volume of 7,000 c.c., by 100 and divide the result by 150, thus standardizing the dosage as well as the blood volume. After these corrections have been made, it is possible to compare the rates of elimination of the dye from the circulation of different persons one with the other. Since the liver is presumably acting on a progressively decreasing amount of dye remaining in the circulation, it would seem correct to use as the ordinates of the curves the logarithms of the different concentrations of the dye.

The accompanying charts show the logarithmic curves of the concentration of the dye two, four and eight minutes after injection into the blood stream. It has been shown that the dye is rapidly diffused through the circulation, so that within two minutes after injection the concentration is the same in all peripheral veins studied. The rate of elimination is constant in the normal person. Readings may be made up to sixteen or eighteen minutes after injection in the normal person, but for practical purposes the readings two, four and eight minutes after injection are taken. In those with marked retention of the dye, the concentration of the dye may be high for several hours after injection. The ultimate fate of the dye in such instances is not known, but it has been suggested by Schmidt[6] that the compound may be changed to one with fewer halogens and pass out through the urine or bile.

PATIENTS WITH NO KNOWN LIVER DISEASE

The curves of seventeen patients with no known liver disease are presented. Chart 1 shows the variations that have been found in this group. It is of interest to note that Cases 3 and 9 were instances of hyperplasia of the thyroid gland and that Patient 29 was suspected of having early cirrhosis of the liver, and is therefore also grouped under that heading. Patient 50, with rapid elimination of the dye, presented pernicious anemia, and Patient 12, with lung abscess and secondary anemia, showed very rapid elimination of the dye from the blood stream. It should be noted that the curves showing the highest concentration of the dye in the blood stream after eight minutes is lower than the lowest figure in known liver disease (cirrhosis).

CIRRHOSIS

Thirteen cases of suspected or proved cirrhosis of the liver were studied. Chart 2 shows in a striking way the retention of the dye in this group. Patient 36, showing the most rapid elimination of the dye, had no symptoms and presented a gross picture of cirrhosis of the liver at the time of operation for gallbladder disease four years before. Patient 33 had marked portal obstruction, and Patient 21 had marked symptoms of cirrhosis of the liver following arsphenamin treatment for latent syphilis. In both cases the dye was present in high concentration at the end of the eight minute period. It should be noted that in all cases of this group the percentage of concentration, at the end of eight minutes, is well above the normal average.

CARCINOMA OF LIVER OR BILIARY PASSAGES

Only four cases of malignant disease of the liver or biliary passages have been studied (Chart 3). In three there was marked retention of the dye, but in only two of these can we state that obstruction of the biliary passages served to prevent the elimination of the dye through the bile. In the third, a diagnosis of carcinoma of the pancreas was made, but we have no data as to concomitant jaundice. In the fourth (Case 57) there was no delay of elimination of the dye, and there was no evidence of biliary obstruction. The ascites was probably due to portal obstruction or peritoneal metastases. We are unable to explain the increase of concentration of the dye in Cases 14 and 17 at the four minute readings. Similar observations with tetrachlorphthalein suggest that the dye may be stored up in the tissues and then rapidly discharged to give such results. Possibly there may be changes in the blood volume resulting from the injection of the dye. Errors in making readings in the presence of bile may be a factor, although the standard is made up with plasma and a definite amount of the dye. It was known from experimental work that estimations of the dye concentration in the bile could not be accurately made in the presence of bile pigments.

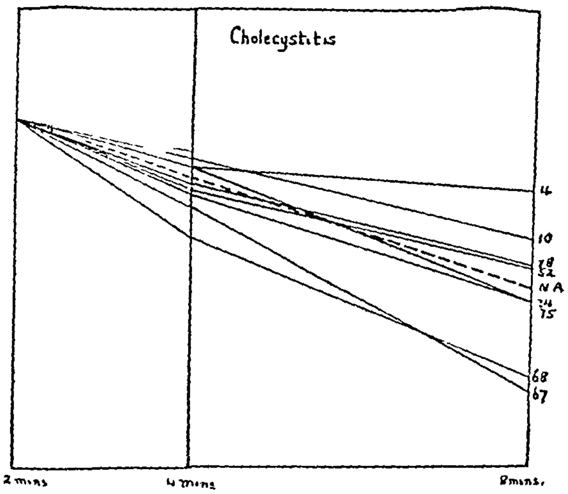


Chart 4.—Cholecystitis with and without gallstones.

CHOLECYSTITIS

Chart 4 shows the curves in nine cases of chronic cholecystitis with or without stones. It will be noted that the variations are great as would be expected where there is always a possibility of some degree of associated cirrhosis. Case 4 was one of our earliest cases, and the high concentration at eight minutes may be a technical error. In Case 68, with a rapid elimination of the dye, there had been attacks of jaundice due to stone. Jaundice was present at the time of the test.

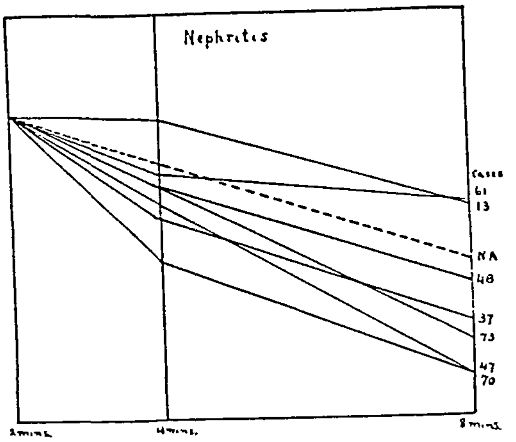


Chart 5.—Nephritis. Rapid elimination of the dye in Cases 47 and 70.

NEPHRITIS

Five cases of renal or cardiorenal disease have been studied and show wide divergence of results (Chart 5). In the main, they follow the normal variations. In Case 47 there was marked cardiovascular-renal disease, with rapid elimination of the dye from the blood stream. After improvement in the general condition, the dye showed a slower rate of elimination (indicated as Case 48). Case 70, presenting advanced nephritis, with a low phenolsulphonephthalein kidney excretion, showed a rapid elimination of rose bengal from the blood stream. A second determination (Case 73) showed also a rapid elimination of the dye. Patient 61 had a delay of elimination of the dye, but had syphilis and a large liver, which may explain the high readings. Patient 13 had probable cirrhosis as well as chronic nephritis. From the striking increased rate of elimination of the dye (rose bengal) in patients with low phenolsulphonephthalein output through the urine in nephritis, it has been suggested by one of us (M. D.) that there is some evidence of reciprocal function of the liver and kidney. Further studies are to be made in cases presenting advanced nephritis.

CONGESTIVE HEART FAILURE

Seven cases presenting congestive heart failure were studied. Chart 6 shows that the curves fall within the normal limits except in Case 69, in which anasarca was extreme. The function of the liver may be slightly impaired in such cases of advanced cardiac failure.

JAUNDICE

A few cases have been studied in which jaundice was the presenting symptom. In those with definite obstruction from tumors or adhesions, the rate of elimination of the dye has been decreased. Two patients with congenital hemolytic icterus showed no delay in the elimination of the dye. Catarrhal jaundice may show a moderate delay in the elimination of the dye, as is shown in Cases 66 and 71. When the condition clears up, the functional test gives a normal curve.

Cases 66 and 71.—Female, aged 43. Jan. 25-Feb. 11, 1925.

C. C. Pain in the back. Nausea and vomiting.

P. I. Began one week before entry with malaise, headache and backache, later chilly sensation. Four days later nausea and vomiting and slight fever. R. B. C., and albumin in urine before entry.

P. E. Obese, slightly jaundiced, quite drowsy woman. Abdomen: Liver and spleen barely palpable.

Lab. Urine: Bile pos.; urobilin pos. Wassermann negative. Slight jaundice.

Liver function test (rose bengal): Five days after entry, 19.1; 17.6; 12.9.

Liver function test (rose bengal): Just before discharge (no jaundice), 19.1; 15.5; 10.6.

Diagnosis: Catarrhal jaundice.

ASCITES

It has been of interest that, in our series, when ascites is an outstanding physical finding the liver function test showed wide variations. When the ascites was due to liver disease with portal obstruction, the dye was retained in the blood stream; in other words, the permeability of the liver for the dye was low. In one case presenting marked congestive heart failure, the dye showed moderate retention. In two cases presenting tuberculous peritonitis and ascites, the function was normal, which was of value in diagnosis. In one case of wide spread carcinomatosis of the liver without jaundice, the function was low.

COMMENT

In a group of fifty-seven cases, selected for the purpose of this report, the rate of elimination of rose bengal from the blood stream has been used as a test for liver function. The dye is eliminated almost entirely from the blood stream through the liver in a comparatively short period of time. It is harmless to the subject in a dose of from 100 to 150 mg. The results in individual cases have been reduced to an arbitrary blood-volume standard for purposes of comparison. The results in this small group of cases indicate that rose bengal is the most satisfactory dye for the estimation of livei permeability, which may give a test for gross liver function analogous to the phenolsulphonephthalein test for gross kidney function. Any dye that may be eliminated either by way of the urine or by way of bile fails to fulfil the requirements of a test for liver function. It is felt that studies with rose bengal or some similar dye, and simultaneous estimations on the bile pigments

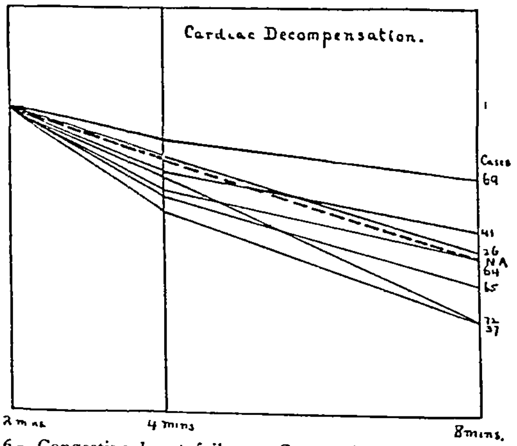


Chart 6.—Congestive heart failure. Curves fall within normal limits.

of the blood serum, offer the greatest promise of present day knowledge of the functional capacity of the liver. Obstruction to the biliary passages from any cause naturally gives a retention of the dye in the blood stream, but other methods are available to show the extent of the obstruction. A combination of the foregoing methods, with an estimation of the fibrinogen and lipase functions, may greatly assist in the clinical study of liver disorders.

CONCLUSIONS

1. Further observations confirm our earlier opinions of the value of rose bengal as a test for liver permeability and gross function.

2. The dye fulfils the following requirements (*a*) it is nontoxic in the amounts necessary for the test; (*b*) it is a crystalloid; (*c*) it is eliminated through the liver; (*d*) it remains in the circulation for a sufficient length of time to allow determinations of the dye in the plasma to be made.

3. Patients with definite cirrhosis or other extensive liver disease show a marked retention of the dye in the circulating blood.

4. Obstruction of the biliary passages causes a retention of the dye, but in such cases there are other clinical evidences of obstruction of the biliary passages.

5. In all other cases studied, the curves are within normal limits. The test may be of great value when jaundice and ascites are presenting symptoms.

6. Our observations suggest that there are some reciprocal functions of the liver and the kidneys.

ABSTRACT OF DISCUSSION

Dr. P. D. Lamson, Baltimore: Dr. Kerr's dye has the advantage in liver function tests of not being excreted by the kidneys. His method of making the determination is based on Rosenthal's method of plotting the concentration of dye in the blood at intervals and thus getting the rate of disappearance of dye. Rosenthal injected a given amount of dye per kilogram of body weight on the assumption that the blood volume is proportional to body weight. Dr. Kerr injects a fixed amount of dye regardless of weight, and uses the dye concentration after a two minute interval to determine the blood volume. From these figures all dye concentration is reduced to dilution in an arbitrary blood volume to avoid error in dye concentration due to variation in blood volume. Theoretically, Dr. Kerr's method would be the more correct, but practically I doubt whether the error in such blood volume determinations is less than from Dr. Rosenthal's assumption that the blood volume is proportional to body weight. Dr. Kerr's method can be correct only when the dye injected is completely mixed in two minutes and there has been no loss during this time. As I have pointed out in papers on blood volume, it is impossible to prove that both of these conditions are satisfactorily fulfilled. One must choose between Rosenthal's assumption that the blood volume is proportional to body weight and the possible error in Dr. Kerr's blood volume determination. In a recent publication in The Journal by Dr. Rosenthal on bromsulphalein, a 300 per cent. variation was found in his initial dye concentration in pathologic cases after a five minute period. If these dye concentrations were used to express blood volume, a 300 per cent. variation would be shown which is probably beyond even pathologic variation. One might then feel this variation in dye concentration is an index of dye loss, rather than blood volume change, and of too great importance in giving an index of liver function, to be disregarded. I might suggest as of use in comparing the liver function in different cases the "area method," in which the area subtended by Rosenthal's curves during equal time intervals are compared. This gives a numerical expression of function not absolute but helpful.

Dr. Carl H. Greene, Rochester, Minn.: In the last two years I have made a comparative study of the different tests of the functional efficiency of the liver in a series of more than 700 cases. It was found that the retention of dyes in the blood stream is one of the most satisfactory methods of demonstrating changes in the liver. I believe that there is very little difference in the significance of the various dyes used for this purpose. Phenoltetrachlorphthalein, bromsulphalein and rose bengal, all show essentially the same type of changes. The choice of the dye and the method of notation used for the comparison of results depend on the practical usefulness and on expediency, rather than on fundamental differences in behavior. The results of Dr. Kerr, obtained by the use of rose bengal, are essentially the same as those I have obtained with the use of phenoltetrachlorphthalein and bromsulphalein. Jaundice has a very marked effect on the excretion of dye. It was found that in the different types of jaundice, whether observed clinically or produced experimentally, there is a close parallelism between the degree of dye retention and the changes in the serum bilirubin. As the retained bile leaves the blood stream, the dye retention decreases. Similar changes can be shown in dogs following the intravenous injection of bile. In such cases, the jaundice dominates both the clinical picture and the laboratory findings. This is important in the practical use and interpretation of these tests in patients with obstructive jaundice. The dye test cannot be used as an index to the permanent changes in the liver, and so to the surgical risk. The dye test is most useful in cases of hepatic disease without jaundice. In carcinomatous involvement of the liver, in chronic passive congestion, in the toxemia of pregnancy, and in cirrhosis of whatever origin, the presence of dye retention may be of great diagnostic value. The functional study of the liver is difficult, but the quantitative determination of the serum bilirubin by the method of van den Bergh and the study of dye excretion, as introduced by Rowntree and Rosenthal, have a definite place in clinical medicine.

Dr. William J. Kerr, San Francisco: We felt that we came near enough for clinical purposes and that our method was accurate within 100 c.c. of blood volume. With the patients at rest, there was no perceptible change in the blood volume during the course of the experiments. I was interested in the suggestions made about the use of the area method in charting results. It may be of considerable value. I think that in the work of Rosenthal, in which the first readings were made five minutes after injection, these show a wide variation because the bromsulphalein is eliminated very rapidly, more rapidly than our dye. Dr. Greene brought up the question of the relation of jaundice to the excretion of the dye. Biliary obstruction naturally holds back the dye in the blood stream and gives an apparently low rate of elimination. In regard to the other tests Dr. Greene suggested, we used the modified van den Bergh test for biliary pigments in the blood stream. Dr. Benedict brought up the mathematical question in the method of plotting curves on logarithmic paper. I shall not go into greater detail in the discussion at this time. I think that he is probably correct in his criticism of the use of the method when any clinical method is open to error; but we thought that our results would be more easily comparable if we used this method. By the usual plan of charting, our curves showed rapid fall at the beginning, and then a more gradual fall as the dye was eliminated.

The Blood in Sprue.—There is one much neglected subject for future study in sprue, the blood. Even yet I confess myself unable to make up my mind as to what relation sprue bears to an anemia, pernicious in all but the name, and apt to be associated, as it is, with achylia gastrica. That a large number of cases of sprue end fatally with a blood picture indistinguishable from that of pernicious anemia is incontrovertible. I have blood slides with histories that should be convincing. I wish to record one case of uncomplicated sprue with 512,000 erythrocytes per cubic millimeter and 14 per cent. hemoglobin.—Ashford, B. K.: Sprue, *Ann. Clin. Med.* **4:**13 (July) 1925.

DIAPHRAGMATIC HERNIA

A STUDY OF THREE HUNDRED AND SEVENTY-EIGHT CASES IN WHICH OPERATION WAS PERFORMED *

CARL A. HEDBLOM, M.D.
MADISON, WIS.

This paper is based on the study of 378 cases in which operation was performed, nineteen from the Mayo Clinic,[1] and 359 from the literature. My personal experience is limited to nine cases, in eight of which I had the privilege to operate while at the Mayo Clinic, and one at the Wisconsin General Hospital. This material is studied with especial reference to diagnosis and surgical treatment.

Table 1.—*Etiologic Classification of Cases Presented*

Type	Collected Series	Mayo Clinic Series
Congenital	37	7
Acquired	37	7
Traumatic:		
1. Civilian	151	5
2. War injuries	127	..
Indeterminate	26	..
Total	378	19

The collected cases in which operations were performed represent all found in the available literature up to 1924. The presentation of the observations and results of this cumulative experience seems not only justifiable but also desirable from the fact that individual experience with the condition is limited and also because of the occurrence in the literature of a variety of vague and unsupported statements.

Two cases of diaphragmatic hernia, one of traumatic origin, were reported by Ambroise Paré[2] in 1610. Bowditch[3] found eighty-eight reported cases up to 1846. In 1879, Bardenheuer[4] did a colostomy in a patient with acute intestinal obstruction. At necropsy, two days later, a strangulated diaphragmatic hernia was discovered. In 1886, Riolfi[5] reported a cure following repair of a stab wound of the diaphragm through which omentum prolapsed. Naumann,[6] in 1888, operated in a case diagnosed clinically, but he was unable to reduce the herniated stomach, and the patient died. This seems to be the first case of diaphragmatic hernia without prolapse of hernia contents through the chest wall diagnosed clinically, and the first such case in which operation was performed. Walker,[7] in 1889, reported an operative recovery following laparotomy and suture of a rupture in the diaphragm caused by a falling log.

CLASSIFICATION

Diaphragmatic hernia is a transdiaphragmatic evisceration of abdominal contents into the thorax. Etiologically, it may be classified as congenital, traumatic and acquired. Congenital hernias are due to imperfect development of the diaphragm. Traumatic hernias are such as follow penetrating wounds of the diaphragm, as from a knife stab or a bullet, and such as follow crushing injuries that produce rupture of the diaphragm due to greatly increased intra-abdominal pressure. Hernias occurring in the anatomic areas of least resistance, notably at the esophageal ring, may be congenital, or may be of traumatic origin in the sense that an inguinal hernia may be due to trauma; but it seems probable that most hernias in these regions, like inguinal hernias, develop gradually. Such are acquired hernias. Clinically, many cases are difficult to classify. Congenital hernias may remain relatively symptomless until old age, and there may be no symptoms in traumatic hernia until years after the injury has been forgotten. Furthermore, even in some cases in which symptoms follow immediately after an injury, it may be difficult to determine whether the trauma or a preexisting congenital or acquired weakened area in the diaphragm was the chief cause. Such cases may be segregated as of indeterminate etiology. The classification of the series is shown in Table 1.

AGE

(*a*) Mayo Clinic series. There were two children in the clinic series aged 5 and 9 years. Two patients were 17, three were in the third decade, nine in the fourth, two in the fifth and one in the seventh.

(*b*) Collected series. The age incidence among the civilian patients, at the time they were operated on, is indicated in Table 2.

It will be noted that the list includes twenty-two children 10 years of age or under, eleven of them 5 years or under. The youngest was a baby of 3½ months. It will also be seen that in a relatively large proportion of the cases of congenital origin the patients had reached adult age. Most patients with large congenital hernia die in infancy, but some reach adult age, as in two cases in the Mayo Clinic series, with congenital absence of half the diaphragm.

Table 2.—*Age Incidence and Etiologic Classification of Civilian Patients*

Age	Traumatic	Congenital	Acquired	Indeterminate	Total
Under 1 year	2	3	0	1	6
1 to 5 years	4	3	0	0	7
6 to 10 years	5	2	2	0	9
11 to 20 years	13	12	1	4	30
21 to 30 years	37	6	7	4	54
31 to 40 years	17	4	6	2	29
41 to 50 years	12	1	10	..	23
51 to 60 years	4	2	4	2	12
61 to 70 years	2	0	5	1	8
71 to 80 years	..	1	1	..	2
Not stated	55	3	1	12	71
Total	151	37	37	26	251

SEX

Excluding those cases due to war injuries, 197 cases remain in which the sex was noted. Of these, 155 (78.6 per cent.) were males, and forty-two (21.4 per cent.) females. Of those of congenital nature, twenty-five (67.6 per cent.) were males, and twelve (32.4 per cent.) females. Of those of acquired origin *twenty* (54 per cent.) were males, and seventeen (46 per cent.) females.

ETIOLOGY

(*a*) Mayo Clinic series. Of the patients considered to have an acquired hernia, one developed symptoms during pregnancy which was terminated by cesarean section. She had a kyphosis of extreme grade, so that the pregnancy probably resulted in a greatly increased intra-abdominal pressure. In this case and in two others the opening was parasternal (foramen of Morgagni). The opening in one case was anterolateral and in the others at the esophageal hiatus. The symptoms in all these cases were of relatively short duration compared with the age of the patients.

---

* Read before the Section on Surgery, General and Abdominal, at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

* Because of lack of space, this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent by the author on receipt of a stamped addressed envelop.

[1] The cases reported from the Mayo Clinic include those previously reported by Beckman, Giffin, Balfour, Carman and Fineman, and Hedblom.

[2] Paré, Ambroise: Cited by Bowditch (Footnote 3).

[3] Bowditch: A Treatise on Diaphragmatic Hernia, Buffalo M. & S. J. **9**: 11, 65, 1883.

[4] Bardenheuer: Berl. klin. Wchnschr. **16**: 135, 1879.

[5] Riolfi: Bull. della. Soc. Lancisiana degli. ospedali di Roma; Ref. Centralbl. f. Chir., 1893, p. 873.

[6] Naumann, G.: Diaphragmatic Hernia; Laparotomy; Died, Hygiea **5**: 524-528, 1888.

[7] Walker, E. W.: Diaphragmatic Hernia, Internat. J. Surg., September, 1900; abstr., J. A. M. A. **35**: 773 (Sept. 22) 1900.

Table 3.—*Type of Injury in Traumatic Cases in Mayo Clinic Series*

Type of Injury	Cases
Crush in sitting posture	1
Railroad collision	1
Crush of abdomen by wagon	1
Fall	2
Total	5

The type of injury in the traumatic cases is shown in Table 3.

The obvious or probable etiology in the hernia of traumatic and acquired origin is shown in Table 4.

Table 4.—*Obvious or Probable Etiology of Traumatic and Acquired Hernia in Collected Series*

Traumatic (Civilian)		Traumatic (War Injuries)		Acquired	
Injury	Cases	Injury	Cases	Etiology	Cases
Stab	92	Bullet wound	44	Straining or lifting	6
Crush	15	Shell wound	32	Parturition	3
Gunshot	11	Bayonet wound	2	Fall	1
Wound	9	Not specified	49	Whooping cough	1
Fall	9	Total	127	Not specified	26
Operation for empyema	3			Total	37
Collision	2				
Fractured rib	1				
Not classified	9				
Total	151				

PROBABLE DURATION OF THE HERNIA

(*a*) Mayo Clinic series. Since the duration of the symptoms may not correspond with that of the hernia opening, the duration of the hernia cannot be definitely determined except in case of those of congenital origin and in some of those of traumatic origin. An example of a latent period in the traumatic hernia was a child on whom I operated who had an opening in the diaphragm 10 or 12 cm. in diameter, produced by the

Table 5.—*Duration of Symptoms in Collected Series*

Duration	Total	War Trauma	Civilian Trauma	Congenital	Acquired	Indeterminate
Under 24 hours	54	12	42	..	..	..
1 to 7 days	11	4	6	..	1	..
8 days to 5 weeks	9	5	4	..	..	..
6 weeks to 2 months	5	3	2	..	..	..
2½ to 6 months	32	20	8	2	1	1
7 months to 1 year	37	21	14	2	..	..
1 to 2 years	49	27	11	2	7	2
2 to 3 years	30	14	8	4	4	..
3 to 5 years	19	3	4	6	4	2
5 to 10 years	14	5	3	..	6	..
10 to 15 years	12	2	3	4	3	..
15 to 25 years	12	..	1	9	1	1
26 to 72 years	3	..	..	2	1	..
Uncertain	91	11	45	6	9	20
Total	378	127	151	37	37	26

pressure of a loaded manure spreader twent ht
months before. The first symptoms develo
months after the accident. In the other trauma
from the Mayo Clinic the symptoms developed
but a hernia was not suspected until some ti

elapsed. Two patients presented themselves for examination one year after the accident, and three patients three, four, and nine years, respectively, after the accident.

The duration of symptoms in the collected series is shown in Table 5.

It will be noted that the hernia had been present less than twenty-four hours in fifty-four cases, 14.3 per cent., but they were all instances of transdiaphragmatic evisceration of abdominal contents and presented problems as to surgical treatment similar to those of the hernias of longer duration.

CONTENTS OF HERNIA

The organs herniated in the series are shown in Table 6.

The stomach was herniated in 194 cases, the colon in 158, the intestines in fifty-six and the spleen in twenty-four, of the 343 cases in which the hernia content was noted. In one of my cases the hernia was spontaneously reduced at the time of operation.

Table 6.—*Organs Herniated*

	Collected Series	Mayo Clinic Series
Stomach	50	7
Stomach and intestines	8	..
Stomach and colon	14	..
Stomach and omentum	31	..
Stomach and spleen	2	..
Stomach, intestines and colon	3	2
Stomach, intestines and omentum	3	..
Stomach, colon and omentum	45	1
Stomach, omentum and spleen	8	..
Stomach, colon and spleen	3	..
Stomach, intestines and liver	1	..
Stomach, omentum and liver	3	..
Stomach, colon, intestines and omentum	13	..
Stomach, colon, omentum and spleen	2	..
Stomach, intestines, colon, omentum and spleen	6	..
Stomach, intestines, colon and pancreas	1	3
Stomach, colon, omentum, spleen and kidney	1	..
Intestines	9	..
Intestines and colon	4	..
Intestines and omentum	7	..
Colon	37	1
Colon and omentum	28	3
Colon, intestines and omentum	1	1
Spleen	1	..
Spleen and omentum	1	..
Omentum	61	1
Not stated	35	..
Total	378	19

A sac was noted to be present in twenty-four cases. In six of these cases the hernias were of congenital origin and in fifteen acquired. In two there was a history of injury. The symptoms in these cases were of rather long duration. The hernia opening was at the esophagus in thirteen and parasternal in six. The sac contained the stomach alone in nine, the colon alone in three, and both stomach and colon with omentum in the others.

SYMPTOMS

The symptoms in diaphragmatic hernia are due chiefly to mechanical interference with the function of the organs herniated in whole or in part and to impairment of respiration and circulation. The variable hernia content accounts in large measure for the wide range and variability of symptoms.

(*a*) Mayo Clinic series. Twelve patients had symptoms referable to the abdomen alone and seven to both abdomen a hest. Of the abdominal symptoms, pain,
ng constipation were the most
ei some was colicky in character.
the floor for relief. In two
by eating. Hematomesis
he most marked symptom

in two. Persistent belching occurred in four. Dysphagia was present in one. Practically the only symptom in one was obstinate constipation, relieved only by repeated enemas, which produced dyspnea. In two cases, pain referred to the left shoulder, and dyspnea, were the most marked. Two patients described gurgling and rumbling sounds in the chest, and one described a sensation as of the stomach being "lifted up." Two complained of palpitation following exertion and at times a feeling that they were "going to die." The thoracic symptoms may be relatively slight, as in one case in the clinic series in which half of the diaphragm was absent and the pleural cavity full of abdominal viscera. It seems noteworthy that the average duration of symptoms in the hernias of congenital origin was for the most part many years, while most of those in the other groups were of less than three years' duration.

TABLE 7.—*Symptoms in Two Hundred and Twenty-Nine Cases*

Abdominal		Thoracic	
Pain	113	Pain	19
Vomiting	118	Dyspnea	44
[illegible] lying in [illegible]	11	Dysphagia	13
Nausea without vomiting	7	Hemoptysis	5
Symptoms of obstruction	43	Palpitation	9
Constipation	29	Cyanosis	3
Distention	23	Pain in left shoulder	4
Indigestion	20	Hiccup	3
Belching	11	Cough	8
Hematemesis	8		
Distress after food	6		

(*b*) Collected series. The more marked symptoms noted in 229 of the cases reported during the last ten years are given in Table 7.

Periodicity of symptoms, vomiting without nausea, melena, tetany, convulsions, dysphagia in taking liquids but not solids, and anemia were among occasional symptoms noted. A few patients had practically no symptoms.

PHYSICAL SIGNS

(*a*) Mayo Clinic series. Tympany or dulness to percussion over the lower thorax was noted in four of my cases, and heart displacement in three. Splashing or gurgling sounds were heard in four. The physical findings were practically normal in four.

(*b*) Collected series. The more significant physical findings in 100 cases since 1913 in which the findings were recorded are seen in Table 8.

TABLE 8.—*Physical Signs in One Hundred Cases*

Tympany lower thorax	31
Dulness lower thorax	11
Abnormal sounds in thorax	10
Heart displacement	18
Chest asymmetry	7
Scaphoid abdomen	6
Normal findings	12

DIAGNOSIS

The great variability in symptoms and signs, and the considerable number of cases in which they are very slight, account in large measure for the relatively large proportion of cases of late diagnosis and for those in which the diagnosis was made at operation or on the postmortem table.

The cases diagnosed before, during and after operation are indicated in Table 9.

In the differential diagnosis, chief reliance is placed on the roentgen-ray demonstration of the presence of a portion or all of an abdominal viscus above the diaphragm.[8] Excluding the cases first seen when acutely obstructed and so not suitable for such examination, the most common cause for failure to recognize the condition or for late diagnosis is the fact that diaphragmatic hernia is not suspected. In an ordinary plate of the thorax, the shadow produced by a diaphragmatic hernia may be mistaken for eventration of the diaphragm, esophageal diverticulitis, thickened pleura, pleuritic bands, pneumothorax, pulmonary abscess, subphrenic abscess, tumor in the thorax and other conditions. It is only when a diaphragmatic hernia is suspected and roentgen-ray examination is made of the esophagus, stomach and bowel following administration of an opaque solution that these organs may be with certainty recognized as herniated. In cases so examined, failure to make the diagnosis may be due to spontaneous reduction of the hernia at the time of examination, to the fact that the viscus may be so constricted that the opaque solution cannot pass into the herniated portion, or to the fact that it is small or lies behind the heart shadow. Herniation of the omentum only, which occurred in 16 per cent. of this series, or of other solid organs, cannot be recognized with certainty roentgenologically or by any other clinical means, except in case the herniated organs prolapse through the chest wall. Differentiation between diaphragmatic hernia and eventration of the diaphragm is, *at times*, impossible.

TABLE 9.—*Time of Diagnosis*

Before Operation	Number	Per Cent.
From prolapse of omentum	67	17.7
By roentgen-ray examination	107	28.3
Clinically and roentgenologically	51	13.5
At operation	113	30.0
Post mortem	24	6.3
Uncertain	16	4.2
Total	378	100.0

TABLE 10.—*Site of Hernia in One Hundred and Sixty-Three Patients*

	Total Cases	Per Cent.	Nontraumatic Cases		Clinic Series
			Number	Per Cent.	
Lateral	48	29.4	6	9.7	2
Posterior	22	13.5	8	12.9	2
Anterior	7	4.3	2	3.2	..
Parasternal	6	3.7	6	9.6	3
Central	37	22.7	13	20.9	3
Esophageal	33	20.2	24	38.9	7
Foramen Bodaloque	4	2.5	2	3.2	..
Two openings	3	1.9	..	....	..
Pericardial	1	0.6	1	1.8	..
Entire diaphragm absent	2	1.2	..	....	2
Total	163	100.0	62	100.0	19

INDICATIONS FOR OPERATION

Diaphragmatic hernia in most cases impairs health and more or less incapacitates the patient. In a large proportion of cases, 33.3 per cent. in this series, it strangulates, producing gastric or intestinal obstruction that may lead to gangrene and perforation. Operation after obstruction has developed doubles the postoperative mortality. Many cases are on record in which chronic partial obstruction had been present for years and the patient reduced to a living skeleton. Contraindication to operation exists, but, in my opinion, the contraindications have often been overrated in comparison with the incapacitation the hernia produces and with the menace to the patient's life that its presence involves.

---

[8] Carman, R. D., and Fineman, S.: Roentgenologic Diagnosis of Diaphragmatic Hernia, with Report of Seventeen Cases, Radiology 3: 26-45 (July) 1924.

TYPE OF OPERATION

(*a*) Mayo Clinic series. Laparotomy was performed in eighteen cases and thoractomy incision in one. A left costal margin incision was used in several.

(*b*) Collected series. In 191 cases, 50.5 per cent. of the combined series, laparotomy was performed, in 111, 29.3 per cent., a thoracotomy, and in 19.3 per cent. some combination of laparotomy and thoracotomy.

SITE OF HERNIA

The site of the hernia as given in 163 patients operated on since 1907 is indicated in Table 10.

It will be noted that in the Mayo Clinic series there were three cases of parasternal hernia. The hernia opening was to the right of the round ligament of the liver, through the right foramen of Morgagni in one, through the left foramen in one, and through both in the third. The hernia sac and contents were in the right pleural cavity in all three. I find in the literature only four similar cases in which operation was performed. In one,[9] there was a hernia through both foramina with omentum in the right, in the other two the hernia was through the left foramen but the hernial sac projected into the right pleural cavity; of these two, one[10] contained the stomach, transverse colon and omentum, and the other[11] contained a loop of strangulated transverse colon. The cases of absence of the diaphragm in the Mayo Clinic series are the only two cases in which operation was performed found in the literature.

Table 11.—*Operative Procedure*

		Laparotomy		Thoracotomy		Thoracotomy and Laparotomy	
	Total	No.	%	No.	%	No.	%
Opening sutured	263	72	49.3	127	89.4	64	86.4
Hernia reduced, opening not sutured	43	34	23.3	6	4.3	3	4.1
Hernia not reduced	35	26	17.8	2	1.4	7	9.5
Hernia not found	21	14	9.6	7	4.9	0	....
Total	362	146	100.0	142	100.0	74	100.0

In one patient on whom I operated, the opening was just to the right of the esophagus, and the pyloric portion of the stomach was herniated into a large sac in the right pleural cavity.

OPERATIVE PROCEDURE

(*a*) Mayo Clinic series. The hernia was reduced and the opening sutured in all except four of the clinic cases. In one patient an ileostomy was done for acute obstruction. The hernia was found later by roentgenologic examination. In a second patient, an old man of 72 with a hernia opening at the esophageal hiatus and a marked kyphosis making exposure very difficult, no attempt was made to suture the opening; but the stomach, which alone had herniated, was sutured to the anterior abdominal wall. A later thoracotomy closure was contemplated, but the patient died of pulmonary embolus the seventeenth day. The other two were the cases of congenital absence of the diaphragm.

(*b*) Collected series. The proportion of the collected cases in which the hernia was found and reduced, and the opening sutured, is indicated in Table 11.

From this table it is seen that the hernia was sutured in 72.6 per cent. of 362 cases, the hernia reduced but the opening not sutured in 11.8 per cent., the hernia not reduced in 9.7 per cent., and the hernia not found in 5.9 per cent. The table further shows that in 146 laparotomy cases the hernia was repaired in 49.3 per cent., while following thoracotomy it was repaired in 89.4 per cent.

The special procedures employed to effect reduction included incising or digital dilation of the hernia ring, passing the stomach tube and puncturing the stomach to collapse it before reduction was possible, splenectomy through thoracic incision, inducing pneumothorax to counteract negative tension, and resection of omentum, leaving the adherent portion of it in the pleural cavity. In cases in which reduction could not be effected an enterostomy was performed in some cases of intestinal obstruction, and gastro-enterostomy in some cases in which an incarcerated portion of the stomach could not be reduced. Repair of the hernia opening impossible to suture was effected by a plastic operation using aponeurotic flaps, and in a few cases by a plastic operation on the thickened pleura and muscles of the thorax. In most of the cases in which direct suture was impossible, an attempt was made to obturate the hernia opening by suturing the adjacent stomach, spleen, liver, omentum or colon into the gap. Inaccessible hernia openings, notably at the esophageal ring, were in many instances left patent, and an attempt was made to fix the stomach in the abdomen by suturing it to the abdominal wall; in some cases this was combined with a gastro-enterostomy.

RESULTS

(*a*) Mayo Clinic series. Fifteen of the nineteen patients recovered from operation. These fifteen patients include the two with congenital absence of the diaphragm, one of whom died one year and the other eight years after operation. Thirteen were well at the time of the last report, from eight months to seventeen years after operation. Four, 21 per cent., died; two within twenty-four hours after operation, of shock, in one case combined with cyanosis; one on the seventeenth day, of pulmonary embolus, and one three and one-half weeks after operation, of peritonitis and purulent pericarditis.

(*b*) Collected series. Of the total of 378 patients, 251, or 66.4 per cent., recovered from the operation. This includes thirty-seven cases in which no attempt was made to suture the hernia opening and five in which the hernia was not reduced. What proportion of the remaining 204 (54 per cent.) were permanently cured is impossible to state, as late results were reported in only a small proportion of the cases. Of twenty-three patients in whom the opening was closed by suturing the stomach, liver, spleen or omentum into it, four died later with symptoms of intestinal obstruction, and in four the hernia was reported to have recurred. One was reported symptom-free at the time of the last report, six months after operation, and one, two years after operation. One of the patients with congenital absence of the diaphragm died a year after operation with symptoms of obstruction. The other died after eight years following a second operation elsewhere.

---

[9] Wallei, E.: Ueber die congenitale Hernia diaphragmatica in Foramen Morgagni und ihre Roentgen Diagnose, Arch. f. klin. Chir. **97**: 952-967, 1912.

[10] Mitchell, J. F.: Discussion, Tr. Am. Surg. A. **38**: 623-624, 1920.

[11] Fitzmaurice-Kelly: A Case of Double Congenital Diaphragmatic Hernia, Brit. J. Surg. **55**: 302-313, 1921, 1922.

A pleural effusion was the most frequent complication among the patients who survived operation. A nonpurulent effusion was reported in sixteen, and an empyema in nineteen.

The operative mortality is given in Table 12.

MORTALITY

There were 127 deaths, an operative mortality of 33.6 per cent. There were 126 patients with acute obstruction, of whom sixty-seven died, a mortality of 53.1 per cent. In the 252 cases of nonobstruction there were fifty-nine deaths, or 23.4 per cent. In a number of cases it could not be definitely determined from the records whether or not an obstruction was present at the time of operation. If these cases were added to those listed as cases of obstruction, the operative mortality in this group would be considerably increased and that of the nonobstructed group correspondingly reduced.

The mortality according to operative route is given in Table 13.

The operative mortality following laparotomy was 42.9 per cent. But if the cases of obstruction are excluded, it was twenty-three, or 22.3 per cent. The operative mortality following thoracotomy was 19.8 per cent. in both obstruction and nonobstruction. Of twenty-three patients operated on by combined laparotomy and thoracotomy, six died, 26.0 per cent., but in none of these cases was there obstruction. In twenty-nine cases in which a thoracotomy was done following an attempt to reduce the hernia by laparotomy, and in some of which a colostomy was done at that time, six of the patients died, 20.6 per cent.; in twelve of these twenty-nine cases there was obstruction. In twenty-one cases in which a laparotomy was done following an ineffective thoracotomy or for abdominal exploration, there were ten deaths, 47.6 per cent.

TABLE 12.—*Operative Mortality*

	Obstructed			Nonobstructed			Total		
		Died			Died			Died	
	Number	No.	%	Number	No.	%	Number	No.	%
War trauma........	62	24	38.7	65	20	30.7	127	44	34.6
Civilian trauma....	33	20	60.6	118	20	16.9	151	41	27.1
Congenital..........	11	8	72.7	26	10	38.4	37	18	48.6
Acquired............	8	4	50.0	29	5	17.2	37	9	24.3
Indeterminate......	12	11	91.6	14	4	28.5	26	15	57.7
Total.............	126	67	53.1	252	59	23.4	378	127	33.6

Obstructed, 33.3 per cent.; nonobstructed, 66.6 per cent.

The mortality following operation on twenty-two children 12 years of age or under was nine deaths, 41 per cent. In two there was obstruction; of these, one case recurred, and one patient died on the table during laparotomy. Of the other twenty patients, eleven were operated on by laparotomy with eight operative recoveries; five were operated on by thoracotomy with three recoveries, and four by combined laparotomy and thoracotomy with one recovery.

CAUSE OF DEATH

The cause of death in relation to operative route is shown in Table 14.

RECURRENCE

(*a*) Mayo Clinic series. The hernia recurred in one of my patients, who had a parasternal hernia and extreme kyphosis. The symptoms of the recurrent hernia were similar to those before operation. The left foramen of Morgagni was found to be from 6 to 8 cm. in diameter as at the first operation. Repair was effected with silk. The patient has been free from symptoms since.

(*b*) Collected series. Eleven recurrences are reported. In two patients there was a second recurrence. In two the hernias were of congenital type, in three acquired and in six of traumatic origin. Six patients were operated on again, with five reported cured.

TABLE 13.—*Mortality in Relation to Operative Route*

	Total			Obstructed			Nonobstructed		
		Died			Died			Died	
	Patients	No.	%	Patients	No.	%	Patients	No.	%
Laparotomy........	191	82	42.9	88	59	67.0	103	23	22.3
Thoracotomy.......	111	22	19.8	15	3	20.0	96	19	19.8
Laparothoracotomy	23	6	26.0	8	0	0.0	15	6	40.0
(1) Laparotomy (2) Thoracotomy...	29	6	20.6	12	2	16.6	17	4	23.5
(1) Thoracotomy (2) Laparotomy....	21	10	47.6	2	2	....	19	8	42.1
Not stated..........	3	2	....	1	1	....	2	0	....
Total...........	378	127	33.6	126	67	53.1	252	60	23.8

SUMMARY

Three hundred seventy-eight patients with diaphragmatic hernia were operated on, nineteen of whom were from the Mayo Clinic and 359 from the literature. Excluding those hernias due to war injuries, 60.1 per cent. were due to trauma; 14.7 per cent., congenital; 14.8 per cent., acquired, and 10.3 per cent. of indeterminate origin. Twenty-two patients were children under 10 years of age. The duration of the symptoms in the traumatic cases was three years or under in about 80 per cent., while in those of congenital and acquired origin it was more than three years in 54 per cent. In a considerable proportion of those of traumatic origin there was a latent period between the injury and the onset of symptoms of hernia, and in a large proportion months or years elapsed before operation.

The symptoms and signs in diaphragmatic hernia were variable. All the abdominal organs except those in the pelvis were a part of the hernia content in some cases. The stomach was herniated in 194 cases, the colon in 158, the intestines in fifty-six and the spleen in twenty-four. A sac was noted as present in twenty-four. Of abdominal symptoms, pain, vomiting, constipation and distention were most common; of those referred to the thorax, pain, dyspnea and dysphagia were the most frequent.

TABLE 14.—*Cause of Death and Mortality in Relation to Operative Route*

	Laparotomy	Thoracotomy	Laparotomy Thoracotomy
Shock..........................	38	13	9
Peritonitis.....................	16	0	1
Empyema......................	3	3	1
Pneumonia....................	3	1	1
Asphyxia......................	7	1	..
Embolus.......................	2	..	..
Hemorrhage..................	1	..	1
Uncertain......................	12	4	10
Total....................	82	22	23

Tympany and dulness to percussion, heart displacement and splashing and gurgling in the thorax were the most constant physical findings. Not infrequently, the physical findings were very few.

Diagnosis was made on clinical or roentgen-ray findings in 59.5 per cent., at operation in 30 per cent. and at postmortem examination in 6.3 per cent., and it was uncertain in 4.3 per cent. The diagnosis was made late in the cases eventually recognized.

Laparotomy was performed in 40.3 per cent., thoracotomy in about 39.2 per cent., and some combination of laparotomy and thoracotomy in 20.4 per cent.

The hernia opening was centrally situated in 22.7 per cent., lateral in 29.4 per cent., posterior in 13.5 per cent., at the esophageal hiatus in 20.2 per cent., and variously situated in the remaining cases. There were seven cases, three in the Mayo Clinic series, of parasternal hernia.

The hernia opening was sutured in 72.6 per cent. of 362 cases, was reduced but not sutured in 11.8 per cent., could not be reduced in 9.7 per cent., and was found at necropsy in 5.9 per cent. The hernia was successfully repaired in 49.2 per cent. of 146 cases subjected to laparotomy and in 89.4 per cent. of 142 cases in which the thoracotomy approach was used.

Of the nineteen patients operated on at the Mayo Clinic, fifteen recovered from operation; two with congenital absence of the left diaphragm died one and eight years after operation, and one had a recurrence but has been symptom-free since the second operation. Twelve have remained free from symptoms of recurrence. Four, 21 per cent., died, respectively, of shock, cyanosis, pulmonary embolus and sepsis.

Of the total number, 251 patients (66.4 per cent.) recovered from operation, but in forty-two of these cases no attempt was made to suture the hernia.

The operative mortality in 126 cases of obstruction was 53.1 per cent.; in 252 without obstruction, 23.8 per cent.

The operative mortality, excluding cases of obstruction and those with omentum prolapsed through the chest wall, was 22.3 per cent. following laparotomy, and 19.8 per cent. following thoracotomy.

End-results were reported in only a small percentage of the cases. Of twenty-three patients in whom the opening was closed by suturing an adjacent organ into it, four were reported to have died later of intestinal obstruction, and in four the hernia recurred.

CONCLUSIONS

1. The etiology of diaphragmatic hernia is often obscure, its pathologic anatomy diversified and its clinical manifestations manifold.

2. In about two thirds of the reported civilian patients operated on in whom the etiology could be assigned, the hernias have been due to a penetrating wound or rupture of the diaphragm by sudden greatly increased abdominal pressure; one sixth were congenital and one sixth acquired.

3. A large proportion of the reported cases in which operations were performed were recognized only after symptoms had been present many years. A considerable proportion were unsuspected until discovered at operation, sometimes after a number of previous operations, and some were disclosed at necropsy.

4. The failures to make an early diagnosis were doubtless due in some measure to the variable and uncertain clinical manifestations, but probably for the most part to the fact that the condition was not considered in the differential diagnosis. The history of a penetrating wound of the lower thorax, a crush, a collision or a fall, or the presence of symptoms referable to the abdomen or thorax or both should suggest the possibility of diaphragmatic hernia in every case in which the diagnosis remains in doubt.

5. In the differential diagnosis, chief reliance is to be placed on the roentgen-ray demonstration of an abdominal viscus in the thorax following administration of a meal or enema opaque to the roentgen ray. Failure to demonstrate the hernia roentgenologically may be due to spontaneous temporary reduction, to the failure of the opaque substance to enter the herniated viscus or to the presence of a solid viscus only, such as omentum, in the hernia.

6. In the absence of definite contraindications, an exploratory operation should be performed if diaphragmatic hernia is suspected, and following a positive diagnosis even if the symptoms are slight. In a large proportion of cases obstruction finally develops, and this complication at operation more than doubles the postoperative mortality, limits what may be attempted in the way of repair of the hernia and often necessitates secondary operations.

7. The choice between laparotomy and thoracotomy, in my opinion, depends on the nature of the case. In cases of obstruction in which the cause of the obstruction is in doubt, exploratory laparotomy is indicated. If the hernia opening has been demonstrated to be parasternal, laparotomy furnishes the most direct and practical avenue of approach. In cases due to a recent wound with prolapse of omentum through it, thoracotomy is the most direct approach and may be combined with a transdiaphragmatic exploration for injury to abdominal viscera. In the ordinary cases without obstruction, thoracotomy has yielded a somewhat lower mortality than laparotomy, and successful closure has been effected in a much larger proportion of the cases following thoracotomy than following laparotomy. A combined thoracolaparotomy may be necessary to effect reduction and closure, but such combined operation has resulted in a very considerable increase in operative mortality.

8. In more than 90 per cent. of the patients operated on there was no sac. In such cases the objection to thoracotomy because of operative pneumothorax produced is largely obviated for the reason that an operative pneumothorax is produced also through the laparotomy wound, the moment the hernia is reduced. Furthermore, the presence of abdominal viscera in the pleural cavity for months or years, probably in most cases, results in compensatory changes that increase the normal limit of tolerance to open pneumothorax. In any case the objection to thoracotomy on the grounds of pneumothorax is largely obviated by the use of positive pressure intrapharyngeal insufflation anesthesia, which amply suffices to maintain respiration and to reinflate the lung if it is still expansile.

9. If possible the hernia ring should be sutured. Obturation of the hernia opening with some abdominal viscus is a makeshift that has resulted in a relatively large number of known recurrences. Suturing the stomach to the abdominal wall has proved ineffective in preventing its prolapse, and is of no avail in preventing herniation of other viscera.

10. A few cases of large or recurrent hernia openings have been successfully closed by fascia transplants or muscle plastics. Very large openings, including cases with absence of the diaphragm on the left side, possibly may be closed by a plastic operation following extrapleural thoracoplasty of the lower thoracic wall by extensive rib resection done as a preliminary operation.

Regardless of whether a thoracotomy or a laparotomy has been performed, the air should be aspirated from the pleural cavity after it has been closed. Even if the collapsed lung will not reexpand, the negative tension produced probably in most cases will increase the negative tension and so increase the respiratory capacity on the opposite side. Atmospheric tension exerted on the mediastinum from the side of the collapsed lung, added to the increased intra-abdominal pressure due to returning the herniated viscera and postoperative distention, may reduce the respiratory capacity beyond the limit of safety.

11. Recurrences following repair of diaphragmatic hernia have been reported in about 5 per cent. of the cases. Most recurrences are probably due to incomplete closure or to tension on the suture line.

12. The operative mortality has been due in large measure to late operation in the presence of obstruction, to shock and to respiratory failure. Early operation before obstruction has occurred, measures to prevent shock and differential pressure anesthesia, and precautions against postoperative respiratory embarrassment should, therefore, greatly reduce it.

13. Operation for diaphragmatic hernia, whether laparotomy or thoracotomy, usually involves the technical consideration and problems of surgical pneumothorax.

First Central Building.

ABSTRACT OF DISCUSSION

DR. LEON T. LEWALD, New York: Dr. Hedblom's paper is one of the most comprehensive papers on this subject that has been presented, and it is particularly valuable because he has classified the cases as to their etiology. Most of the articles have dealt with so-called traumatic hernias. I would stress the question of the congenital hernias, some of which have not been so recognized, particularly cases of congenital absence of the left half of the diaphragm. If one recognizes this condition, I think the selection of the case for operation would depend a good deal on the exact knowledge and on the amount of defect of the diaphragm.

DR. FRANCIS STUART MATHEWS, New York: I have seen two cases of diaphragmatic hernia.

DR. CARL A. HEDBLOM, Madison, Wis.: I should like to emphasize the importance of keeping in mind the possibility of diaphragmatic hernia in the differential diagnosis of abdominal and thoracic disease. The literature contains reports of a relatively large number of cases diagnosed only after symptoms had persisted for many years. A considerable number of cases are reported in which the hernia was finally discovered at operation, sometimes after several operations, following which the symptoms persisted. Many hernias are discovered at necropsy, after death from gastric or intestinal obstruction. If the possibility of diaphragmatic hernia is kept in mind and roentgen-ray examination made following bismuth meal and enema, early diagnosis will be the rule instead of the exception, as it has been up to the present time. I should also like to stress the statement that diaphragmatic hernia calls for surgical repair regardless of where the hernia is situated, provided there are no definite contraindications to operation. Cases occur in which the hernia opening is so large that plastic operations are necessary, but in the great majority of cases the opening can be sutured, and the patient relieved of distressing symptoms and of the danger of acute obstruction with its incident high mortality even following operation.

Relief of Sick by Federal Government.—All organized measures for the relief of the sick and disabled have some public health bearing, but the law of 1798 has especial significance because it was the first one enacted to safeguard the lives and health of any industrial group. Under its provisions any American seaman taken sick or injured while following his calling is entitled to relief in hospitals and dispensaries of the service. These provisions were extended in 1894 to include life-saving crews and lighthouse keepers, all of whom are civil employees of the government.—Kerr, J. W.: *Pub. Health Rep.* 40:1678 (Aug. 14) 1925.

CHOLECYSTOGRAPHY: ORAL ADMINISTRATION OF SODIUM TETRA-IODOPHENOLPHTHALEIN *

EVARTS A. GRAHAM, M.D.
WARREN H. COLE, M.D.
SHERWOOD MOORE, M.D.
AND
GLOVER H. COPHER, M.D.
ST. LOUIS

Soon after we had demonstrated that the gallbladder could be made opaque to the roentgen ray by intravenous injection of various derivatives of phenolphthalein, experiments were begun to determine whether it would not be possible to obtain shadows of the gallbladder after oral administration of these compounds. The oral route offered not only simplicity of administration, but also the avoidance of occasional severe reactions to the intravenous injection of halogenated phenolphthaleins, which a few of our patients were having at that time. Although the reactions to intravenous injection of sodium tetra-iodophenolphthalein, which we are using for cholecystography,[1] are few and of no moment, we have continued oral administration of this compound with increasing satisfaction.

Similarly, other workers have had good results from oral administration of these substances. Menees and Robinson[2] report a series of thirty-two patients who had cholecystograms made after oral administration of sodium tetrabromphenolphthalein in capsules, with the addition of sodium bicarbonate to prevent precipitation of the salt by the hydrochloric acid of the gastric juice. Later, they gave the compound in gelatin capsules hardened by exposure to formaldehyd. They found that the gallbladder could be visualized after the giving of tetrabromphenolphthalein by mouth in all normal patients who retained the drug for more than one hour. None of their patients experienced severe reactions. Whitaker, Milliken and Vogt[3] report the oral administration of sodium tetra-iodophenolphthalein to forty-four persons. Twenty-seven of these patients had no toxic symptoms, and the symptoms of the remaining patients were slight. Gallbladder shadows were obtained in 93 per cent. of the normal subjects.

Palefski[4] has administered sodium tetrabromphenolphthalein in an emulsion of acacia through a duodenal tube, with satisfactory results. Stewart[5] has injected a solution of sodium tetra-iodophenolphthalein into the jejunum through a duodenal tube, without reaction.

Our first attempts to produce shadows of the gallbladder in animals by oral administration of various substances were unsuccessful. The animals usually vomited, and some of them had diarrhea after the giving of the sodium salts of tetrabromphenolphthalein and tetra-iodophenolphthalein in powder form or in

---

* This work was aided by a grant from Edward Mallinckrodt, Jr.

* From the Departments of Surgery and Radiology, Washington University School of Medicine, and Barnes Hospital.

1. Graham, E. A.; Cole, W. H., and Copher, G. H.: Cholecystography: The Use of Sodium Tetra-Iodophenolphthalein, J. A. M. A. **84**: 1175 (April 18) 1925.

2. Menees, T. O., and Robinson, H. C.: Oral Administration of Sodium Tetrabromphenolphthalein: Preliminary Report, Am. J. Roentgenol. **13**: 368 (April) 1925.

3. Whitaker, L. R.; Milliken, Gibbs; and Vogt, E. C.: The Oral Administration of Sodium Tetra-Iodophenolphthalein for Cholecystography, Surg., Gynec. & Obst. **40**: 847 (June) 1925.

4. Palefski, I. O.: Visualization of the Gallbladder with Sodium Tetrabromphenolphthalein by Oral or Intraduodenal Administration Through the Duodenal Tube, M. J. & Rec. **121**: 474 (April 15) 1925.

5. Stewart, W. H.: Administration of Tetra-Iodophenolphthalein Through Duodenal Tube, Am. J. Roentgenol. **13**: 378 (April) 1925.

aqueous solution through a stomach tube. The hydrochloric acid of the gastric juice precipitated the soluble sodium salts of the phthaleins in the insoluble acid form. We knew, however, that the sodium salts were absorbed from the intestine because we had obtained shadows of the gallbladder after giving them by rectum.[6] Shadows were also obtained after introduction of sodium tetrabromphenolphthalein into the jejunum by laparotomy.

Clinical application of these facts for cholecystography was made by the oral administration of sodium tetrabromphenolphthalein and, later, tetra-iodophenolphthalein in capsules coated with phenyl salicylate. As phenyl salicylate is not digested in the stomach, it reaches the small intestine, where it is usually dissolved, freeing the contents of the capsules for absorption. Tetra-iodophenolphthalein is probably carried to the liver through the portal circulation, where it is excreted in the bile, producing the shadow of the gallbladder in the manner that has been described after intravenous injection.[7]

The dose of sodium tetra-iodophenolphthalein by mouth has averaged 0.07 gm. per kilogram of body weight in man. We have given 5 gm. as the routine dose for an adult. It has been given in capsules or pills coated with phenyl salicylate, containing 1 gm. of sodium tetra-iodophenolphthalein. The dose may be further subdivided into capsules or pills, if desired. The five capsules or pills are taken a few minutes apart in the course of the evening meal near 6:30 p. m. Food is withheld until after films are made at 9 a. m. and 1 p. m. the following day. After these pictures are made, a glass of milk or cup of coffee may be given. Another film of the gallbladder region is made at 5 p. m. and sometimes again at 9 a. m. the next day. The evening meal is eaten as usual. Water may be taken as desired, following ingestion of the drug. The technic of the roentgen-ray exposure is the same as we have described for other cholecystograms.[6] A Buckey diaphragm may or may not be used. Occasionally the phenyl salicylate about the phenolphthalein will not be dissolved in the intestinal tract, and of course then there will not be produced a shadow of the gallbladder. This fact must be borne in mind when a shadow of the gallbladder is not obtained. We hope to eliminate this difficulty soon. Undissolved capsules or pills show in the intestine on films with the density of lead bullets.

The vast majority of patients have no symptoms after taking sodium tetra-iodophenolphthalein by mouth in the manner we have described. We have performed cholecystography in 112 cases after oral administration. Four per cent. of these patients were nauseated and vomited. A few others had mild discomfort. There have been no toxic symptoms attributable to phenyl salicylate.

We are not prepared to give final conclusions on the merits of the oral as compared with the intravenous method of administration of sodium tetra-iodophenolphthalein for cholecystography. So far, the results of oral administration have checked closely with the results from intravenous injection and with operative confirmation. We are still of the opinion, however, that the amount of the substance that reaches the liver is one of the most important features of the procedure,[1] since it is a functional test of the gallbladder as well as a means of visualizing the organ. At present we can be sure that a sufficient quantity of tetra-iodophenolphthalein has reached the liver only after intravenous injection. The reliability of the intravenous route is further enhanced by the denser shadow usually procured by injection. Some accuracy of diagnosis, hence, must be sacrificed if the more simple method of oral administration is used. Our method at present is first to give the patient tetra-iodophenolphthalein sodium by mouth. If a shadow of the gallbladder is not produced and if there is a question of radiologic technic or any other factor, as vomiting, which makes the result doubtful, we confirm the findings by intravenous injection. This is the method that has been recommended recently by Whitaker, Milliken and Vogt.[3]

The shadows of the gallbladder are generally not quite so dense after oral administration as those produced by intravenous injection. The interpretation of the shadows is essentially the same as we presented early in the work of cholecystography.[8]

We have performed cholecystography on a total of 467 hospital and ambulatory patients. A correct diagnosis has been made in 95 per cent. of the cases confirmed by operation. From personal correspondence, conversation, and the rapidly increasing bibliography of the subject,[9] we estimate that several thousand cholecystograms have been safely made at the present time. We have not heard of any deaths. Thirteen per cent. of the last 100 ambulatory cases that have had intravenous injection of sodium tetra-iodophenolphthalein have presented slight reactions of nausea or vomiting. Two per cent. of the patients have vomited and had backache. One patient with myocarditis and low pulse pressure had nausea, vomiting and a considerable fall in blood pressure. We urge caution when injecting patients with a cardiac lesion. All these reactions were transitory.

---

[6] Graham, E. A.; Cole, W. H., and Copher, G. H.: Cholecystography: An Experimental and Clinical Study, J. A. M. A. **84:** 14 (Jan. 3) 1925.

[7] Copher, G. H.: Cholecystography: Appearance and Disappearance of the Shadow, J. A. M. A. **84:** 1563 (May 23) 1925.

[8] Graham, E. A.; Cole, W. H., and Copher, G. H.: Visualization of the Gallbladder by the Sodium Salt of Tetrabromphenolphthalein, J. A. M. A. **82:** 1777 (May 3) 1924.

[9] Graham, E. A., and Cole, W. H.: Roentgenologic Examination of the Gallbladder: Preliminary Report of a New Method Utilizing the Intravenous Injection of Tetrabromphenolphthalein, J. A. M. A. **82:** 613 (Feb. 23) 1924. Graham, E. A.; Cole, W. H., and Copher, G. H.: Roentgenological Visualization of the Gallbladder by the Intravenous Injection of Tetrabromphenolphthalein, Ann. Surg. **80:** 473 (Sept.) 1924; The Roentgenological Visualization of the Gallbladder by the Intravenous Injections of Sodium Tetrabromphenolphthalein, Radiology **4:** 83 (Feb.) 1925; An Experimental and Clinical Study of the Roentgenological Visualization of the Gallbladder by the Use of Various Compounds, J. Missouri M. A. **82:** 40 (Jan.) 1925. Graham, E. A.: Method for Roentgenological Visualization of Gallbladder, Ann. Clin. Med. **3:** 99 (July) 1924. Carman, R. D., and Counseller, V. S.: Radiologic Diagnosis of Cholecystic Disease by Graham Method: Preliminary Report, Tr. Sect. Gastro-Enterol. & Proctol., J. A. M. A., 1924, p. 77; Roentgenologic Diagnosis of Cholecystic Disease with the Aid of the Sodium Salt of Tetrabromphenolphthalein, Am. J. Roentgenol. **12:** 403 (Nov.) 1924. Whitaker, L. R., and Milliken, Gibbs: A Comparison of Sodium Tetrabromphenolphthalein with Sodium Tetra-Iodophenolphthalein in Gallbladder Radiography, Surg., Gynec. & Obst. **40:** 17 (Jan.) 1925. Milliken, Gibbs; and Whitaker, L. R.: The Clinical Use of Sodium Tetra-Iodophenolphthalein in Cholecystography, Surg., Gynec. & Obst. **40:** 646 (May) 1925. Carman, R. D.: Progress in Roentgenological Examination of Gallbladder, editorial, Am. J. Roentgenol. **13:** 165 (Feb.) 1925. Enfield, C. D.: Gallbladder Shadows, Kentucky, M. J. **23:** 100 (Feb.) 1925. Smithies, Frank; and Oleson, R. B.: The Visualization of the Biliary Tract: A New Method by Intravenous Injections of Tetrabromphenolphthalein, Illinois M. J. **47:** 97 (Feb.) 1925. Silverman, D. N., and Menville, L. J.: Observations of the Visualized Gallbladder by Graham Method with Reference to the Effect of Nonsurgical Drainage: Preliminary Report, J. A. M. A. **84:** 416 (Feb. 7) 1925. Moore, Sherwood: Cholecystography After the Method of Graham, Cole and Copher, read before the Midwest Section of the American Roentgen Ray Society, Detroit, Feb. 19, 1925. Baumgartner, E. A., and Jewett, C. H.: Gallbladder Visualization, Clifton M. Bull. **2,** March, 1925. Stewart, W. H.: Further Experience with Tetrabromphenolphthalein Sodium Salt in the Roentgenographic Diagnosis of Gallbladder Disease, Am. J. Roentgenol. **13:** 259 (March) 1925. Winslow, K.: Cholecystography and Diagnosis of Chronic Gallbladder Disease, Northwest Med. **24:** 124 (March) 1925. Ottenberg, Reuben; and Abramson, H. A.: Production of Liver Necrosis by Tetrachlorphenolphthalein and Tetrabromphenolphthalein, J. A. M. A. **84:** 800 (March 14) 1925. Tuffier and Nemours-Auguste: Sur la visibilité de la vésicule biliaire aux rayons x, Presse méd., March 18, 1925; Sur la visibilité de la vésicule biliare, Bull. officiel Soc. d'electrotherap. et de radiol., December, 1924. Gosset, A., and Loewy, G.: Cholecystographie: Epreuve de Graham, Bull. méd., March 21, 1925. Limits of Safety in Administration of Tetrabromphenolphthalein, editorial, Am. J. Roentgenol. **13:** 371 (April) 1925. Cole, W. H.: Relation of Gastric Content to the Physiology of the Common Duct Sphincter, Am. J. Physiol. **72:** 39 (March) 1925.

We wish to add also the fact that we have obtained satisfactory cholecystograms by the use of the somewhat analogous compound, phenoltetra-iodophthalein, which is the eleventh substance we have found experimentally capable of producing cholecystograms.

CONCLUSIONS

1. Successful cholecystograms can be made by oral administration of sodium tetra-iodophenolphthalein and sodium-tetrabromphenolphthalein.
2. Doubtful results of cholecystography following oral administration should at present be confirmed by intravenous injection.
3. Phenoltetra-iodophthalein also produces good cholecystograms.

Euclid Avenue and Kingshighway.

LIVEDO RETICULARIS [*]

CHARLES M. WILLIAMS, M.D.
AND
HERMAN GOODMAN, M.D.
NEW YORK

Every dermatologist has observed the peculiar mottling of the skin that sometimes occurs when the body is exposed to the cold. It is so common an occurrence that no attention is paid to it, beyond noting that it is not an early macular syphilid. And yet the phenomenon is not universal—many patients show no such mottling. What is the cause of the difference? It is a question that has not yet been answered, principally because the condition is so transitory and unimportant that very few have given any study to it. The words cutis marmorata and livedo, which have been applied to this condition, are not to be found in the indexes of most of our dermatologies. Mild as it is, this rash is only the first member of a long series, gradually increasing in extent and in severity, constituting, in the more severe cases, a permanent disfigurement. There is an increasing literature on the subject, although very little has been published in this country. Our attention was called to it by two children seen in the outpatient service of the New York Skin and Cancer Hospital, Dec. 28, 1923, and presented before the New York Academy of Medicine, Jan. 2, 1924. The case histories and findings are as follows:

Family History.—The father probably has an arrested pulmonary tuberculosis. The mother's paternal grandmother died of tuberculosis. There was a history of paralysis in the mother's family for at least two generations. There is no history of syphilis, carcinoma, hemophilia, familial epistaxis or nevus formation.

Personal History.—The children are the third and fourth of a family of seven, all the rest of whom are normal, except that one had a lesion at the vertex when born, similar to that occurring in the elder of our patients—the mother describes it as a blood clot, which later disappeared, leaving a scar. The history and the clinical findings in the two cases are so nearly identical that one description will do for both.[1] Birth was normal and unattended, and nothing unusual was observed until 18 months of age, except that the children were rather slow in learning to walk and talk, and dentition was slightly delayed. At that time, the mother noticed a discoloration, which appeared first on the cheeks, and later on the extremities, the trunk being little or not at all affected. At the same time, a persistant diarrhea appeared, and neither symptom had been affected by any treatment, except that the diarrhea could be temporarily controlled by medication. The children were undersize and underweight, but no definite abnormality of the blood or viscera was detected, in spite of repeated, careful examination. Emotionally they were unstable—either listless or very active. The eruption was markedly symmetrical. There were centers of greatest density on both cheeks, free borders of the auricles, tip of the chin, backs of the hands, center of the buttocks, outer surfaces of the upper part of the leg, front of the knees and dorsum of the feet. The eruption consisted of a lilac-pink field made up of irregular areas apparently corresponding to the underlying blood vessels, forming a veritable retiform network, enclosing normal skin areas. The ratio of affected to unaffected appearing skin at the densest points was about 3 to 1; that is, three parts of pink to one of normal skin. The normal lines of the skin were exaggerated. Multitudes of shiny macules were arranged between these lines, each no more than pinhead in size, never raised and not infiltrated. The suggestion of atrophy gained at first glance was not confirmed by closer inspection of areas in which the process seemed at its point of greatest development. From the centers named, the eruption seemed to spread peripherally, losing much of its color, and gaining at points farthest from the center, an inverse ratio of affected to unaffected, 3 to 1; that is, three parts of normal skin to one part of affected skin, until at the merging into normal skin no pink was to be seen at all. Only the lesions on the chest suggested cutis marmorata. Except for a few superficial, visible, engorged capillaries, telangiectasia as ordinarily understood was not a feature of this eruption. Pigmentation was not present. There was no edema and no keratosis. Varicosities were absent. There was no suggestion of the appearance of flat, vascular nevi, nor any bright red puncta like cayenne pepper grains. On stroking or on pressure, all the color disappeared from the lesions and the skin of even the most marked areas seemed entirely normal in texture. When the pressure was removed, the color returned instantly. One hand held above the head and the other down by the side of the patient showed the effect of posture to be that of pressure, for the upper hand was much the paler of the two. On exposure to cold or warmth, on excitement or when crying, the color was much more marked, in that it was darker and gave a bluish tint. The temperature of the affected and nonaffected parts of the skin seemed the same on palpation. The sensation of the skin was normal to touch, pain, heat and cold.

Dec. 8, 1924, Dr. Kretzer of our medical staff reported to us that the diarrhea was controlled by the administration of suprarenal substance. The children were also being given pituitary extract. Dr. Kretzer could see no change in the skin.

We saw the children again, April 15, 1925. The eruption was unchanged. The mother reported that the children did better at school when taking suprarenal substance and pituitary extract than when these drugs were omitted. Examination of a piece of skin removed from the right cheek showed only a flattening of the dermal papillae and rather prominent, small blood vessels of the papillary derma.

We have searched the literature in the endeavor to find a category in which to place these cases, but have been unable to find any description which exactly fits them. A study of the reports has lead us to the following classification, which is offered as a basis for future study.

I. CUTIS MARMORATA

Cutis marmorata is a transitory mottling, which is seen in some patients on exposure of the skin to cold, and consists in the development of a dark network, with lighter interstices. It is probable that there is no pathologic alteration in the peripheral circulatory system in these cases, and that the phenomenon is one of imperfect vasomotor control.

---

[*] From the service of Dr. Williams at the New York Skin and Cancer Hospital.

[*] Read before the Section on Dermatology and Syphilology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] A more complete history and description will be given in another paper, to be published later.

II. LIVEDO RETICULARIS IDIOPATHICA

The group of livedo reticularis idiopathica differs from the first in that the mottling is not transient but permanent, and also in the enormous variety in the quantity and in the arrangement of the discoloration in the various cases. As a rule, the condition is permanent, but von Lohuizen[2] and Thompson[3] have reported cases that seem to belong in this group and have shown great improvement. As the discoloration in this group is fixed, rather than transient, and varies, if it varies at all, only as a result of changes in position, temperature or similar secondary factors, we must assume a local pathologic condition, although this may be so slight as to elude our search, in some cases. The one constant change that is found in all or nearly all the cases in this group when search has been made for it is vascular dilatation. This is sometimes represented by enlarged vessels full of blood, sometimes by an increase in the capillary network. In other words, the condition is an anomaly of the blood vessels and is usually congenital. In many cases the eruption is not very striking, and no departure from the normal is to be found in any other part of the body. In this class belong the cases reported by Guille,[4] whose first case is discussed also by Jourdanet[5] and by Comby.[6] The patient was a boy, aged 4 years, on whose legs there appeared a livid discoloration forming rings and squares. There were no other abnormalities and treatment was without effect. Jourdanet, who saw the patient, believed that the eruption had been present from birth, and the history of its development at 4 years of age was the result of faulty observation. He states that the livid skin corresponded to the areas of maximum circulation of Renaut[7]—the exact reverse of Comby's description. This is not so contradictory as it sounds, because in other case reports the same patient is said to show livid spots on a pale ground, and livid rings enclosing a pale center, depending on the part of the eruption examined, and we can confirm this observation.

The next year Comby[8] reported a series of twenty-one cases, several of which fall in this group of apparently healthy children suffering from a persistant cutis marmorata; the rest showed various other departures from normal, including congenital syphilis, rickets and malnutrition. Some gave a positive tuberculin reaction and some showed acro-asphyxia.

At the January, 1925, meeting of the New York Dermatological Society, Howard Fox presented a woman, aged 20, apparently in perfect health, except for an acro-asphyxia and a persistent cutis marmorata. The lesion had appeared spontaneously about three years before.

Other cases show more striking changes in the skin, but still with no alteration in the general health, a good example being Pollitzer's[9] case, called by him naevus angiectodes disseminatus. The patient was a man, aged 25, in whom nearly the whole surface was involved from birth. The smallest lesions were bright red or bluish red macules varying from 5 to 15 mm. in diameter, round or irregular in outline, with vaguely marked contours. These patches were most dense over the abdomen, where they formed a close network, and over the thighs, where they formed one unbroken sheet of a bluish red. Histologically, there was dilatation of the capillaries in the papillae and of the subpapillary and subcutaneous plexuses. There was also a deficiency of elastic tissue and hypertrophy of the hair muscles.

Von Lohuizen's[2] case, reported under the name of cutis marmorata teleangiectatica congenita, was equally striking. The subject was a girl, aged 2 weeks, with a discoloration almost universal in its distribution, the only areas of normal skin being a band about 2 cm. broad on each side of the middle line, nose, lips, genitalia, ears, soles and palms; but it was not of quite the same character in all places. It was in part like cutis marmorata, but the pale areas were larger than usual and the network was more distinct and more sharply defined. There were also blue-red spots resembling vascular nevi and a few tortuous veins. Histologic examination showed vacuole formation in the basal and prickle layers, and, in some places, pigment in the basal cells. The only other change noted was the presence in the corium, but not immediately under the epidermis, of numerous blood vessel spaces, mostly of capillary structure, and lined with an endothelial layer. Von Lohuizen believed it to be a congenital defect of development. The child learned to sit up late and walked at 17 months. At 18 months, the lesions were scarcely visible on the face, where from the beginning they had been less conspicuous than elsewhere. A second normal child was born.

In this group also are the two sisters reported by M. Sydney Thompson.[3] Dr. Arthur Whitfield had presented the elder of the two before the Section on Dermatology of the Royal College of Medicine, Feb. 15, 1923. Sister A, born in 1921, was very small. Her cheeks were tense, bright vermilion red, and with a polished surface. In the center of the red area on the cheek was an oval, white patch. On pressure, the color disappeared to a great extent, and revealed a certain amount of nevoid telangiectasia underlying the diffuse redness. The hands were intensely cyanotic and swollen. Practically the whole of the gluteal region was in the same condition as noted in the cheeks. The feet were not affected. The condition was thought to have been congenital, but may have appeared at 1 month of age. A sister born in June, 1923, showed a similar disturbance. The first child of the family of six was said to have been similarly affected. This boy had died at 11 months with convulsions. The eruption in Sister A became more extensive, so that the whole of the cheeks were affected with early changes appearing on both eyebrows, and free edges of the ears. Both arms above the elbows right down to the finger tips showed the same condition, but on the dorsal and extensor aspects only. Extension over the whole gluteal regions and down the thighs to the ankles occurred, but again only on the dorsal and extensor aspects. The knees, however, were wrapped around by the eruption as if by a bandage, the only areas of the body where the internal aspects were affected. The feet were the only regions in which disappearance of the condition had taken place, for at one time even the toes bore these same nevoid telangiectatic spots. The whole of the trunk was absolutely free. The clear area described for the right cheek had counterparts on the left cheek and on both buttocks. Each showed raised follicles without trace of hyperkeratosis. The tense character of the eruption disappeared. No trace of infiltration was perceptible. Fine wrinkling, such as results from both edema and senility, was seen.

---

[2] Von Lohuizen: Ueber eine seltene angeborene Hautanomalie (Cutis marmorata telcangiectatica congenita), Acta Dermat. Ven. **3**: 202 (Sept.) 1922.

[3] Thompson, M. S.: A Hitherto Undescribed Familial Disease, Brit. J. Dermat., December, 1923.

[4] Guille, C.: Etude sur livedo, Thèse de Paris, June 12, 1912.

[5] Jourdanet: Le livedo annularis chez l'enfant, Arch. de méd. d. enf. **15**: 119, 1912.

[6] Comby: Soc. méd. d. Hôp., Dec. 1, 1911, p. 434.

[7] Renaut: Dictionnaire encyclopédique des sciences médicoles, 1883, quoted by Adamson (Footnote 11).

[8] Comby: La livedo annularis chez l'enfant, Arch. de méd. d. enf. **15**: 801 (Nov.) 1912.

[9] Pollitzer: Naevus Angiectodes Disseminatus, International Atlas of Rare Skin Diseases, March 22, 1889, No. 42.

The association of livedo with other defects, which was noted by us, had been observed by Comby[8] and others, and was particularly emphasized by Hess and Kerl.[10] Of the eight cases reported by the latter, Nos. 4, 5, 6 and 7 probably belong in the general group of livedo idiopathica. The eruption varied in extent in the several cases, and some of them presented, besides the livid rings and spots that characterize the eruption, the somewhat paler, transitory mottling of ordinary cutis marmorata. The features of these cases that interested the authors were the absence of syphilis, the absence of any vascular change sufficient to obstruct the circulation, although they report finding numerous dilated veins, and particularly the presence of various signs of defective development, such as projecting ears, facial asymmetry, loose joints, small arteries with feeble pulse, and, in the males, feminine distribution of hair. They conclude, therefore, that the condition is due to an abnormal quality in the skin, as indicated by abnormalities in other organs. Their other patients showed the same changes, and three of them—Nos. 2, 3 and 8, may belong in this class. These cases differ, however, in that in each case there was a definite cause to which the interference with the circulation might be ascribed—in Case 2, the eruption began at the feet, following freezing; in Case 3, it followed nephritis, while Patient 8 had a congenital valvular disease of the heart. These could only be precipitating causes—the vascular defect must already have been in existence. Case 1 belongs in the next section.

III. LIVEDO RETICULARIS SYMPTOMATICA

In the group of livedo reticularis symptomatica there are demonstrable inflammatory changes in the skin, in or around the blood vessels. The commonest class in this group is erythema ab igne, the chronic and persistent mottling of the skin of the legs that sometimes occurs after prolonged exposure to heat, in which passive congestion is followed by inflammatory thickening. As this does not seem an inevitable sequel of exposure to heat, we may perhaps assume in this group, as in all the others, a congenital abnormality.

In another class of cases the livedo is no longer a flat mottling, a mere change of color, but the strands of the net work are in places perceptible to the touch as bands of superficial infiltration, with nodular masses which may be felt either on these thickened bands or scattered along the impalpable parts of the network. Adamson[11] has described a series of six such cases, from one of which he excised a nodule that showed round cell and epitheloid cell infiltration around the blood vessels of the derma. He classes them all as cases of Bazin's disease presenting a livedo-like pattern, and makes the significant comment:

> I am not convinced that persistent and pronounced livedo indicates a special tendency to tuberculosis, but when tuberculides of the type of Bazin's disease occur in patients so affected, the erythema induratum occurs on or maps out the livedo network.

This sentence seems to us to be the key to the whole problem; livedo reticularisis is an anomaly, probably congenital, which may appear spontaneously, or which may be made evident only by an intercurrent disease such as tuberculosis. This intercurrent disease may determine the appearance of livedo by impeding the circulation, as in some of the cases in Class 2; or, if the intercurrent disease itself involves the skin, the presence of the livedo determines the arrangement of the eruption. The first case in the series of Hess and Kerl is a counterpart of those of Adamson—a girl of 17, with erythema induratum on both legs, and presenting also a livedo reticularis, some of the strands of which were brownish and were resistant to the touch. Unna's[12] case may also belong in this group. The patient was a strongly built, well nourished woman who suddenly developed over many parts of the body, especially the legs, arms and back, a blue-gray to blue-violet network, with interstices from 2 to 3 cm. in diameter. At the nodes of the network were black nodules, which sometimes ulcerated and sometimes healed without ulceration. Biopsy showed acute inflammatory changes. Unna interpreted the process as a chronic phlebitis of the skin with multiple necrosis. The cases reported by Kren[13] and by Mijke[14] are probably analogous, but the reports are too sketchy to give an accurate picture. At a meeting of the Vienna Dermatological Society, Ehrmann[15] presented sections from a case of livedo with tuberculosis of the lower extremities, which showed early changes of erythema induratum and endophlebitis. No description of the eruption is given, but the case seems to belong in this group.

Other diseases besides tuberculosis may produce an eruption whose form and arrangement is determined by a preexistent but perhaps unrecognized livedo, and chief of these is syphilis. The credit for calling attention to this class belongs to Ehrmann,[16] although, as pointed out by Adamson, Wilson[17] recorded a case which is probably of this nature. The essential features of Ehrmann's cases are their occurrence in syphilitic subjects, and the demonstration of definite inflammatory changes in the arterioles. Some at least of Ehrmann's cases developed late in life, and he believes the pathologic vascular changes that he observed were the direct cause of the eruption. This may well have been the case. It is quite conceivable that the sluggish current in the areas of reduced circulation favored the deposit of spirochetes in this region, and that the spirochetes so arrested, by their growth-stimulating action, reduced the lumen of the vessels and still further reduced the flow, producing at last a permanent mottling. On the other hand, tertiary syphilis is very common, and only a few of the many patients suffering from it present this eruption: it is more probable, therefore, that a preexistent circulatory anomaly determined the appearance and the arrangement of this particular type of lesion. Other observers have reported cases similar to Ehrmann's, and, when changes in the blood vessels are demonstrable, they belong in the same class with his. Some cases in syphilitic subjects show no demonstrable change in the arteries, which is not surprising. If an apparently healthy subject can develop livedo annularis without perceptible vessel changes, why should not a syphilitic subject do so?

---

[10] Hess, L., and Kerl, W.: Ueber die Pathogenese der Livedo racemosa und ihr nachstehender Hautveränderungen, Dermat. Ztschr. 33: 125, 1921.

[11] Adamson: Livedo Reticularis, Brit. J. Dermat. 28: 281, 1916.

[12] Unna, P. G.: Aspixia Reticularis Multiplex, International Atlas of Rare Skin Diseases, 1893, Plate 31, Figs. 2 and 3.

[13] Kren: Ztschr. f. Haut. u. Gesch. 5: 126, 1922.

[14] Mijke: Ztschr. f. Haut. u. Gesch. 8: 123, 1923.

[15] Ehrmann, S.: Ztschr. f. Haut. & Gesch. 5: 127.

[16] Ehrmann, S.: Ein neues Gefässymptem bei Lues, Wien. med. Wchnschr. 57: 777 (April 12) 1907.

[17] Wilson, E.: Portraits of Diseases of the Skin, Plate 34.

There is still another group presenting cutaneous redness and mottling, in which neither tuberculosis nor syphilis can be demonstrated, and which, on biopsy, show an obliterative endarteritis. Such a case was shown by Stokes[18] in a woman, aged 30, who had suffered from redness and mottling of the extremities, and to a less extent on the back, with attacks of numbness of the lower extremities, for three years. Physical and neurologic examination showed nothing abnormal. The blood Wassermann reaction was negative and the spinal fluid was negative. When 18 months old she had had a very curious case of measles, with suppurative adenitis of the submaxillary lymphatics. Biopsy showed complete endarteritic obliteration of some of the larger arterioles, with less conspicuous endothelial swelling and perivascular infiltration in the smaller capillaries. There was dilatation of other peripheral capillaries. Stokes interprets this dilatation as compensatory: may it not be that the dilatation was the primary condition, which determined the location of the secondary obliterative process?

Our two cases belong to the group of livedo reticularis idiopathica. The discoloration in the two sisters was much more severe than in those reported by Thompson (from Whitfield's service) but not so extensive as in the cases reported by Pollitzer and von Lohuizen. Our patients showed the association of livedo with other marked bodily defects. The important feature, however, is that the body defects enumerated could not be considered as causative for the skin condition. This must not be overlooked in the analysis as given. Our patients walked late, and were poorly developed as compared with their normal brothers and sisters, and with other normal children of the same age. Both had an obstinate diarrhea without inflammatory symptoms. Both were of normal mentality, but somewhat unstable, and either very active or very quiet.

These four cases—Thompson's and our own—to which may possibly be added those of Pollitzer and von Lohuizen, present so many points of similarity and differ so markedly in clinical appearance from the other cases of livedo that they form a distinct group, for which we propose the name livedo telangiectatica. Indeed, the difference in appearance between these cases and ordinary cutis marmorata is so great that at first sight there seems to be little connection between the two; but when one considers the cases of permanent livedo, in some of which the discoloration is very striking, and the absence of any discoverable changes in the skin on microscopic examination, except a dilatation and perhaps an increase in the blood vessels, it seems probable that they all are different phases of the same anomaly.

CONCLUSIONS

1. There is a congenital anomaly of the blood vessels, which in some cases is revealed as a transitory, violaceous mottling on exposure to cold.
2. The same or a similar anomaly may show itself as a permanent mottling, extremely variable both in extent and in severity.
3. This condition may be revealed only when the circulation is impeded by some other agency.
4. This anomaly may govern the distribution of eruptions due to other causes, notably tuberculosis and syphilis, especially when these diseases involve the small blood vessels.

114 East Fifty-Fourth Street.

ABSTRACT OF DISCUSSION

Dr. John H. Stokes, Philadelphia: The situation is certainly much more clearly stated now than in 1914 when I undertook my study of the problem. Ehrman's own students have brought out the existence of a syphilitic and a nonsyphilitic type of livedo racemosa. Dr. Williams now brings forward a type in which not only is there no connection with syphilis, but there is no detectable pathologic change in the vessel walls. In this connection it is worth while to recall Vorner's description of nevus anemicus, which introduced the conception of functional as distinguished from structural nevi. Vessels in nevus anemicus are apparently normal in number, distribution and structure, but the skin affected shows a blanching which is just the reverse of the flush described in Dr. Williams' cases. Nevus anemicus has been observed associated with the functional anomaly of hyperhidrosis in a case reported by Vorner. I have myself reported a nevus apparently of functional type. It is not necessary, therefore, that gross structural change be invariably demonstrated in telangiectatic vascular anomalies. I would emphasize, first, that biopsy for the study of this condition must be deep. Superficial vessels may show no changes, as in the case presented before the Chicago Dermatological Society. Biopsies on the face, on account of cosmetic drawbacks, may not extend deeply enough. I think, too, that studies of vascular fragility and of capillary form in the living subject may assist us in understanding the mechanism of these conditions.

Dr. Paul A. O'Leary, Rochester, Minn.: Dr. Becker of the Mayo Foundation recently studied six cases of generalized telangiectasia. He believes that the etiologic classification of neurogenous, mechanical or toxic seems to account for all cases. Syphilis plays an insignificant part in the group as a whole. In the patients in whom syphilis was thought to play an etiologic rôle, antisyphilitic treatment offered no improvement. Quite definite causative agents were demonstrated in all the cases, so it is quite possible that the absence of such factors is the result of incomplete examination of the patient, although Dr. Becker found that each of these patients presented several etiologic possibilites.

Dr. Herman Goodman, New York: The more we studied, the less we knew. We tried to account for everything we saw. It was our purpose to find a pathologic basis for the clinical aspects, but we were not always successful. The best we could do was to add a microscopic observation of a macroscopic. Unfortunately, this does not give the biopathologic key. In cases of livedo racemosa, for example, one school of observers believes that every instance has a demonstrable pathologic background. Another school is equally certain that this is not true. In our own studies we were particularly careful to take the skin specimen down to the fascial plane. From the forearm, the specimens were taken very deep. In no section studied by us was there any inflammatory change seen in the skin. The vessels seen were perhaps a little more prominent than vessels from a similar place in the skin from normal persons, but that was all. The significance of the type of lesion described in the two sisters awaits clarification.

Dr. Charles M. Williams, New York: Of course, the word idiopathic is a cloak for ignorance, and must be abandoned when all the facts are known. In our cases there was no discoverable cause, except the abnormality of the blood vessels. The point which we wish to emphasize is the existence of a group of cases characterized, clinically, by congestion or dilatation of the blood vessels, and dependent, apparently, on a faulty development of the blood vessels themselves.

---

[18] Stokes: Livedo Racemosa, Arch. of Derm. & Syph. 5:781 (June) 1922.

BILATERAL LUMBAR SYMPATHETIC NEURECTOMY IN THE TREATMENT OF MALIGNANT HYPERTENSION

REPORT OF CASE *

LEONARD G. ROWNTREE, M.D.
AND
ALFRED W. ADSON, M.D.
ROCHESTER, MINN.

Malignant hypertension affects persons in the prime of life, by preference men with a drive, who have attained success at the expense of their vascular systems. In some instances, such hypertension develops from a benign form, while in others it is malignant in type, almost from its inception; the latter type has constituted approximately 10 per cent. of the total number of cases in our hospital experience. The cause of the disease is unknown; the course is stormy and rapid; the prognosis is extremely grave, and the medical treatment is entirely unsatisfactory.

The clinical symptoms are: (1) marked and continuous elevation of systolic blood pressure and disproportionately high diastolic pressure; (2) cerebral manifestations—that is, excruciating dull headaches, intermittent or continuous in character, affecting as a rule the entire cranium, but centering especially in the occiput—insomnia, irritability and mental deterioration, changes in personality and at times apoplectic or epileptiform seizures; (3) loss of visual acuity secondary to neuroretinitis and consecutive to hypertensive changes in the retinal vessels, constriction, spasm, hemorrhages and so forth; (4) gastro-intestinal disturbances, especially epigastric discomfort, and nausea and vomiting; (5) cardiac changes, enlargement and at times dilatation with its accompanying train of symptoms; (6) involvement of kidney, nocturia, albuminuria, cylindruria and sometimes eventual renal insufficiency, and (7) asthenia, which may be the outstanding feature. So striking are the cerebral features that brain tumor is sometimes diagnosed. The extent to which cerebral cardiac and renal manifestations participate probably depends on the relative involvement of the vessels to those organs. Death results, in order of frequency, from cerebral vascular accidents, from cardiac failure and then from renal insufficiency. The course of the disease is rarely longer than two years, during which time the patient, as a rule, suffers intensely from headache, visual disturbances or manifestations of cardiorenal vascular disease, and is largely incapacitated for work.

Treatment has included rest, relaxation, diversion, protection from strain, dietary regulations, hydrotherapy, and the administration of nerve sedatives and of vasodilator drugs. Once the disease is definitely established, treatment does not check its course; it is palliative rather than curative, retards progress somewhat, and in many instances makes the patient more comfortable. Digitalis proves helpful during periods of cardiac decompensation. Removal of foci, especially of the tonsils, should be undertaken only if definitely indicated, because of the risk in such cases.

Since it has fallen to our lot to treat a great many patients having malignant hypertension with results which are ultimately disappointing, it occurred to us that relative freedom from vascular spasm might be attained through the removal of the vasoconstrictor influence of the sympathetic nerves to the vessels of the leg. It was thought that this might not only lower the systemic blood pressure, but also provide simultaneously an area of diminished resistance which would give way under strain and thereby serve somewhat in the capacity of a safety valve for the protection of the cerebral and retinal vessels. In the erect posture, hydrostatic pressure also should favor the effectiveness of this area of lowered resistance for the protection of vital functions during periods of activity. Consequently, in April, 1924, a patient suffering from severe arteriosclerosis, chronic nephritis and terminal uremia was subjected under local anesthesia to a Leriche-Handley operation on the left femoral artery in Scarpa's triangle. The course of the disease was in no way affected, and no significant effect could be determined relative to general blood pressure or to the pressure in either extremity. But it was felt that the case was hardly suitable for the experiment, since the patient was moribund at the time of operation.

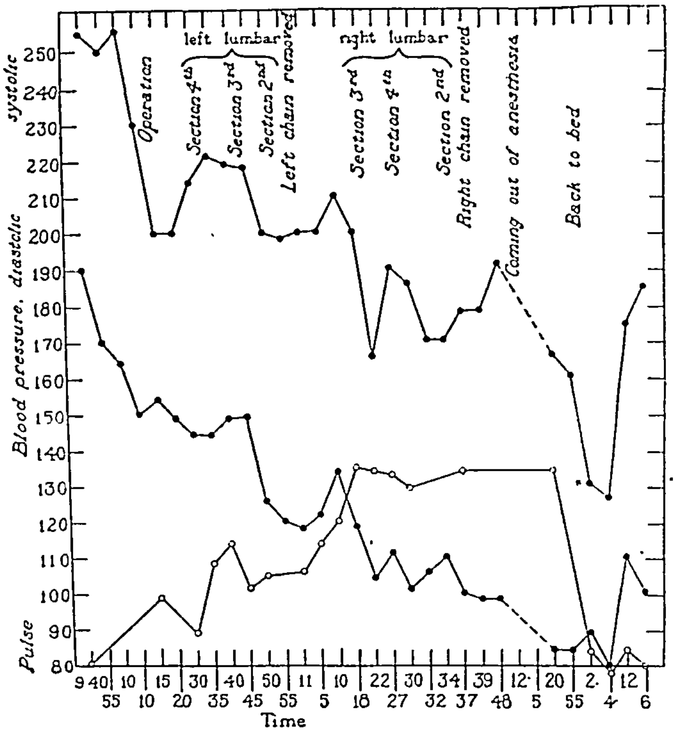


Chart 1.—Blood pressure readings during the course of the operation.

As the vasodilator effects following lumbar sympathetic neurectomy in cases of spastic paraplegia became apparent, a patient with typical advanced malignant hypertension was subjected to bilateral lumbar sympathetic neurectomy (removal of the ganglions with the rami and all the branches and trunks of the second, third and fourth lumbar segments of the sympathetic chain) through a median abdominal incision. This approach was chosen in preference to Royle's lateral approach, because it was decided to remove the lumbar sympathetic ganglions and rami on both sides at one operation, and because better exposure could be obtained by going directly down on the sympathetic chain.

REPORT OF CASE

History.—A man, aged 33, was admitted to the Mayo Clinic, Nov. 10, 1924, complaining of blurring of vision and headache ascribed by local physicians to high blood pressure. The family history was unimportant, except that the mother died from apoplexy. He had had typhoid fever in 1903, acute rheumatic fever while in the army in 1917, influenza in 1918, and an attack of indigestion in 1919 which caused him to consult a physician, who informed him of his high blood pressure (systolic, 190). Subsequently his tonsils were removed. In 1920 he felt dazed and depressed for a period of five weeks, and his memory seemed quite faulty at that time. Eight months before examination he began to suffer from occipital headaches, the pain radiating to the vertex and being accompanied by nausea and vomiting, which were worse before breakfast, but usually "wore off" by the afternoon. This headache was almost continuous for eight months. In November, 1924, his vision began to fail, and he noticed gradually increasing blind spots in each eye.

---

* From the Division of Medicine and the Division of Surgery, Mayo Clinic and the Mayo Foundation.

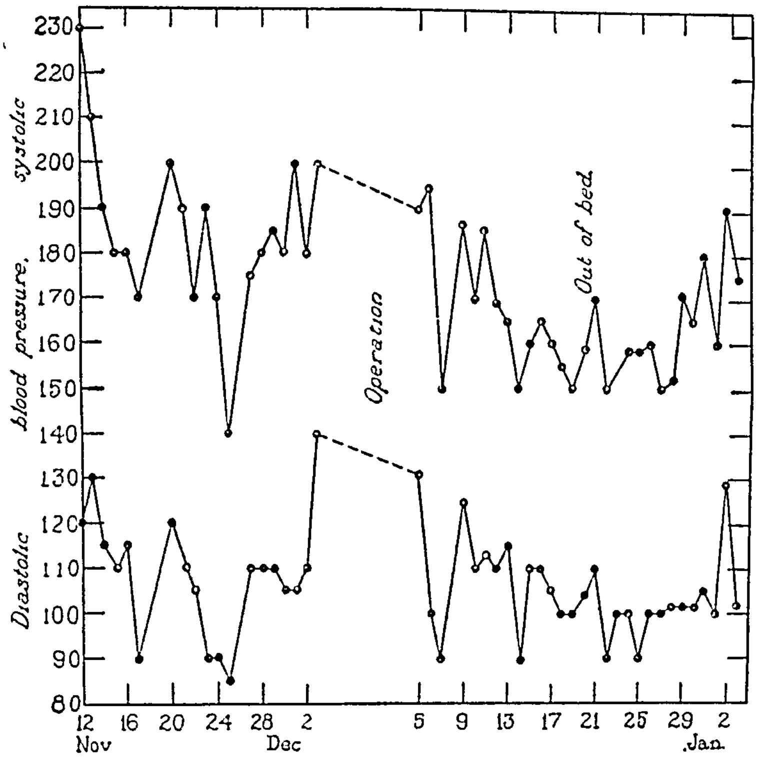


Chart 2.—Blood pressure readings before and after operation.

Examination.—The patient was well nourished and powerfully built; the weight was 185 pounds (84 kg.). Six teeth were infected, and there were bilateral tonsillar tags. The peripheral vessels were moderately sclerosed and the heart slightly enlarged. The systolic blood pressure was 230, and the diastolic 130. Neurologic examination showed nothing of importance. The ophthalmoscope revealed slight edema of the disks, cotton wool exudates, hemorrhages involving especially the left macular region, and general reduction in the size and caliber of the retinal arteries. Repeated urinalysis revealed nothing of interest except slight albuminuria. The phenolsulphonephthalein output in two hours was 70 per cent., and the blood urea and creatinin strictly normal. The hemoglobin was 75 per cent. (Dare); the erythrocytes numbered 4,400,000, and the leukocytes 5,200. The Wassermann reaction on two examinations was negative. The electrocardiogram and roentgenogram of the chest showed no abnormality. The dilution and concentration tests of renal function showed variations in specific gravity of the urine from 1.006 to 1.024, or a slight reduction in dilution capacity. The salt test yielded normal results. The diagnosis was "early malignant hypertension."

Operation and Result.—This case seemed to fall into the group described last year by Wagener and Keith, in which eyeground changes are definite, while the cardiac and renal functions are still practically unimpaired. The patient was admitted to the hospital, but he did not respond at all well to rest, nitrites and warm baths. Because of his age and excellent physical condition aside from this vascular involvement, the possibility of relief by abdominal sympathetic neurectomy was discussed with him. Even recognizing that the operation was, in a sense, entirely experimental, he evidenced great enthusiasm, stating that he was willing to undergo any procedure that offered hope of permanent, or even temporary, relief. During the three weeks of medical treatment in the hospital, his blood pressure continued high, the systolic being from 170 to 200 and the diastolic from 90 to 130, and he complained of marked blurring of vision, headache and weakness.

When the patient arrived in the operating room, the systolic pressure was 255, and the diastolic 190. The blood pressure was followed and recorded during the course of the operation (Chart 1).

The patient recovered without interruption, was in bed for two weeks, and then was up and around the ward on a diet of 2,200 calories with 50 gm. of protein. The blood pressure was noted daily (Chart 2). The day following operation he complained of a sensation of heat and burning in the feet and legs. On examination, the feet were found to be hot, dry and rosy red, especially on the soles and margins. Sweating was abolished. His sensations and the color and appearance of the feet strongly suggested erythromelalgia. Subsequently these manifestations subsided to a large extent, but throughout, to the examining finger, the feet continued to feel decidedly warmer than normal. The skin became dry and finally scaly, and presented an appearance somewhat suggestive of a mild ichthyosis.

Certain observations were made and certain features studied which are of unusual interest. On neurologic examination no changes of great significance in the reflexes were found. However, the patient complained of subjective discomfort, heat, and burning in the feet and legs. In the legs he asserted that he felt heat as pain. Sciatica appeared under rather peculiar circumstances. Heat had been applied in the form of a hot air bath to determine whether sweating could be induced. Whereas, in the upper part of the body, heat induced sweating with normal sensations, in the legs it caused a sensation of actual pain, and there was no sweating. During the course of the hot air bath, on repeating this experiment, the pain became intense. Subsequently it persisted, and eventually the diagnosis of sciatica was made. When the patient was getting up and around, spasms and cramps developed in the calf muscles. These disappeared within a few days, and on dismissal the sensations in the legs were normal except for a feeling of unusual warmth. So great was the patient's conviction that heat had induced the sciatica that he refused absolutely to submit to further studies of this nature.

Calorimetric studies, carried out in the laboratories to determine, if possible, what vasomotor and circulatory changes were induced by this operative procedure, revealed results of unusual interest. An increase of more than 300 per cent. in heat production and radiation was demonstrated by the Stewart-Kegerreis foot calorimeter (Chart 3). This was associated with definite and considerable increase in the surface temperature of the feet.

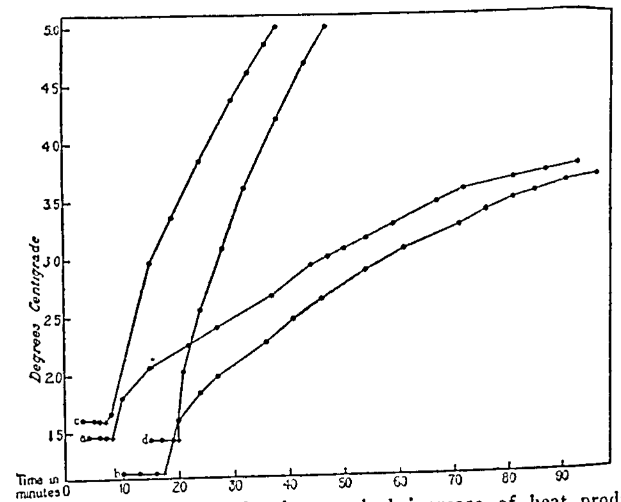


Chart 3.—Heat curves, showing marked increase of heat production and radiation in the foot following operation: *a*, right foot, before operation; *b*, left foot, before operation; *c*, right foot, after operation; *d*, left foot, after operation.

The patient's postoperative course was excellent. At first the subjective improvement was striking. As shown graphically, the blood pressure level was distinctly lowered, at least for the two weeks following operation. The headaches, which had previously occasioned such great distress, entirely disappeared, and recurred but once during the first month and then only for a brief period. His vision improved markedly, the blind spots decreasing materially so that he read almost any print with comfort. No change was noted in volume or composition of the urine; certainly the efficiency of the kidney was in no way impaired.

While the patient was getting up and about, the blood pressure gradually mounted. On one occasion, the headache and epigastric distress recurred for a day or so. He now responded well to nitrites and to the hypertension baths, in this respect exhibiting marked improvement over his former condition. A letter received four and one-half months after the operation expresses great satisfaction over the subjective improvement. Only on one occasion had he suffered from headache and epigastric distress. At six months he reports recurrence of hypertension (systolic blood pressure, 220, and diastolic, 120), but otherwise, is in good health. However, the period elapsing is entirely too short to admit of conclusions as to the effectiveness of this procedure. The case is reported at this time merely to call attention to the possibilities of abdominal sympathetic neurectomy and to the interesting changes observed subsequent to the operation.

RADIUM (MESOTHORIUM) NECROSIS *

FREDERICK L. HOFFMAN
NEWARK, N. J.

An investigation into the subject of radium necrosis was suggested to me by a number of unusual cases of necrosis among young women living in the Oranges and Newark, N. J., all of whom had at one time or another been employed at a radium plant engaged in the manufacture of luminous watch dials. The facts of the situation were first brought to my attention by the executive secretary of the New Jersey Consumers' League with the request that I investigate the circumstances and contribute the results of my research toward a possible solution of a serious industrial disease problem. What follows represents rather the results of a fact finding process than of a technical investigation into matters of detail for which I would not be qualified. Interviews were had as nearly as possible with all the interested parties as well as with attending physicians, dentists or others in position to aid the investigation with supplementary suggestions and information.

The first and, as far as I know, the only reference to the disease in medical literature occurs in a footnote to an address on "Osteomyelitis of the Mandible and Maxilla," an address delivered before the American Dental Association, in September, 1924, by Dr. Theodore Blum of New York. This note reads, "During January, 1924, there came under my observation a case of osteomyelitis of the mandible and maxilla, somewhat similar to phosphorus necrosis; which, however, was caused by some radioactive substance used in the manufacture of luminous dials for watches. The condition has been termed 'radium jaw.'" It has seemed to me to be more appropriate, however, to use the term "radium (mesothorium) necrosis" for the present purpose.

There are, apparently, four trustworthy records of deaths, which for subsequent discussion have been given a serial number, while the addresses are omitted to protect the families against undue annoyance. The cases are all a matter of official record and can be identified without difficulty, if required: (1) H. K. V., Orange, N. J., December, 1924; (2) A. M., Orange, N. J., June, 1923; (3) I. R., Newark, N. J., 1923; (4) H. Q., Orange, N. J., June, 1923.

Of the foregoing four cases, the first one attracted considerable attention, being referred to in the newspapers of the period at some length, with occasionally some interesting and useful observations. Since this case is, therefore, sufficiently well known, it will be referred to here by its proper name as the "Kuser" case:

Mrs. Kuser died, Dec. 9, 1924, at her home in Newark. According to a physician of Orange, who treated her, her system had in some way been poisoned as the result of necrosis of the jaw bone. Mrs. K. had been employed for four years previous at the radium plant in Orange. As far as can be ascertained, the history of her case was somewhat as follows:

She was 25 years of age at the time of her death, and some eight years previous had secured employment at the radium plant, which she left on account of ill health. For two years she was entirely incapacitated for work, and about a year later a dentist discovered, on extracting several teeth, that the jaw bone was rapidly decaying. In February of that year she went to the Flower Hospital in New York, where the jaw was operated on. She was in the hospital three times for periods of different length. Later on, she was sent to a hospital on Long Island, where she remained for fifteen weeks. Through the kindness of a New York physician, who treated the case, I have been given access to some of the records; but they do not throw much further light on the situation. The woman died subsequently under very trying conditions. The attending dentist is unequivocal in his view that the affliction was directly traceable to occupational conditions and to the result of radioactive substances being introduced into the mouth by means of a penciled painting brush, as was found to be customary among the young women employed in this kind of work. Roentgenograms have been preserved of the condition of the teeth and jaw, clearly indicative of a very unusual condition more or less resembling necrosis encountered among match workers.

The history of other deaths is less complete than in the Kuser case, with the possible exception of the second case which was treated by a physician of Newark, who has preserved some excellent roentgenograms of the condition of the jaw and teeth, as well as a specimen of a part of the jaw removed at necropsy, showing obvious evidence of advanced necrosis.

Aside from the patients who have died, I obtained a record of eight patients still living, although one is near the point of death: (5) Miss M. C., Orange; (6) Miss J. K. S., Orange; (7) Miss G. S., Orange; (8) Miss G. F., Newark; (9) Miss A. B., Orange; (10) Miss H. M., Newark; (11) Miss S., Newark; (12) Miss E., Orange. Of these patients I myself interviewed four. Patient 5 is in a far advanced condition of pernicious anemia, complicated by a dreadful condition of necrosis. Miss C. has a clear history of previous employment for several years at the radium plant and of continued illness for perhaps a year and a half, terminating, as stated, in a far advanced condition of a complication of diseases. She is being treated by a physician of East Orange, who has been good enough to furnish me with this brief record of the case:

> Miss C. has now been ill for nearly three years. She worked in the radium factory. She began with inflamed gums, with a gradual breaking down of tissue around the teeth and followed

---

* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

by slow necrosis of the jawbone with several teeth falling out. From the beginning of her attack she became anemic and is markedly so now. She has been seen by some of the best dentists, and with the history of other girls who have been affected the same way and have been operated on with serious results, dentists have refused to operate on Miss C. She is holding her own very well, but destruction of the jaw goes on and her condition goes on to a probable fatality. The blood analysis gave the number of erythrocytes as 1,180,000 per cubic millimeter. The number of leukocytes was 4,700. The differential count showed: polymorphonuclear neutrophiles, 58 per cent.; small lymphocytes, 40 per cent.; large lymphocytes, 2 per cent.; eosinophiles 0, and basophils 0. The number of cells counted was 200; the hemoglobin was 25 per cent., the color index, 1.1; and the majority of the blood cells were macrocytes and a few polychromatophils were noted. No nucleated red cells were found.

The patient has received a considerable amount of medical attention, having been to a hospital in Philadelphia where she was treated by Dr. Stengel, an authority on occupational diseases. Medical expenses on her account, thus far, have amounted to not much less than $1,000.

I have been unable to see Patients 6 and 7. They are sisters who formerly worked at the radium plant.[1] I have been furnished with roentgenograms of the teeth and jaws giving an adequate illustration of the condition of the teeth, indicative of radium necrosis. The attending dentist is of the opinion that the direct causative factor has been exposure to radioactive substances. The cases are not as serious as some of the others, but the most sinister aspect of the affection is that the disease is apparently latent for several years before it manifests its destructive tendencies to the jaw bone and the teeth.

Patient 8 is a woman, aged about 26, who worked for some time at the radium plant but left there possibly a year ago when she secured a position with a bank. Her condition at one time was quite serious, but the teeth on one side of the jaw were removed with a portion of the jaw, and apparently there has been no recurrence of the affection. It is, however, the opinion of the attending dentist that such a recurrence is quite possible. The patient is well developed physically, and apparently is now in good health. She suffered considerably when the disease was active, but, fortunately she secured the best qualified treatment, though at considerable expense to herself. A roentgenogram of her teeth and jaw have been furnished by the attending dentist.

I interviewed Patient 9 and found her to be a woman at present in excellent health. Her teeth, of which I obtained a roentgenogram, show no very serious effects or condition. She worked for some time at the plant, but left it when she found herself affected. She still suffers from the disease, but it is not in a seriously active form. She has, however, a curious swelling of the left breast, indicative of a possible tumor formation, but showing at present no indications of being a cancerous growth. The swelling comes and goes, and while it has been seen by one attending physician, no definite diagnosis has been arrived at. Whether it is an affection attributable to radium exposure is open to question.

I interviewed Patient 10, and found her in very good health. She is about 24, and weighs 165 pounds (75 kg.). She does not suffer seriously from her teeth at present, but to my regret I was unable to secure a roentgenogram. Her condition is decidedly hopeful and there will probably be no recurrence. She is, fortunately, under very good dental treatment. One curious fact with regard to this case is that the woman has a small growth on the side of her neck indicative of a benign tumor formation. It gives her some annoyance, but as yet she has not seen a physician, so that the proper diagnosis has not been arrived at. Whether this affection is the result of radium exposure is, of course, open to question.

Patients 11 and 12 I have not seen, but roentgenograms of the condition of the teeth have been furnished by the attending dentist. They present necrotic indications, not in advanced condition.

All of the foregoing twelve cases represent former employees of a radium plant in the Oranges. They have all done precisely the same work and in precisely the same way. They all were in the habit of wetting a penciled brush with their lips, while in use, for the purpose of painting watch dials with luminous or phosphorescent substances. There is some question of doubt as to whether they were instructed to do their work this way, or whether they worked contrary to instructions. They certainly seem to have copied the habit one from another, and found it decidedly convenient, the brush being better adapted to the purpose when penciled to a fine point with the lips. They all have a record of considerable working periods, and in all cases it seems that the disease condition did not develop until some months or years after discontinuance at the plant. This, of course, precludes a thorough investigation of conditions inimical to health as then existing, for plant conditions in the meantime have unquestionably been improved, and a notice is now posted reading "Do not put brushes in your mouth."

I have not been able to trace two of the death certificates, but regarding the patients who have died in the Oranges, I find that Patient 4 was certified to as having died from primary anemia after about six months' duration, complicated by Vincent's angina and pneumonia. This certificate is signed by a physician of West Orange, N. J. The certificate in Case 2 indicates that the cause of death was ulcerative stomatitis of about three months' duration complicated by syphilis. Neither certificate gives the slightest indication of radium affections.

With the foregoing information in my possession, I made every effort to secure supplementary data from those, who, like myself, had given consideration to the situation. I was informed by the state bureau of labor that an investigation had been made, but with entirely negative findings. As far as I am able to ascertain, the investigation did not include interviews with the persons directly concerned. I was informed also that an investigation had been made by the Medical School of Harvard University, but no report has as yet been published. The U. S. Public Health Service had briefly considered the matter but made no investigation. In correspondence with the company concerned, I learned that it had, of course, become aware of the insinuations made from time to time that work in the plant was injurious to health, but it had been unable to trace the affections reported to any causative factor of which it could take cognizance. It disclaimed any instructions to use the brush as has been intimated, but, to the contrary, affirmed that it had warned employees against wetting the brush with their lips. I inspected the plant, but there were no young women at work at the time on account of the practical cessation of activities in connection with the manufacture of radium watch dials.

---

[1] One of these has since died from pernicious anemia.

At one time, as many as 150 persons or more had been employed, but now only two or three remain at work. The company has suffered seriously as the result of prevailing suspicions that the work is distinctly unhealthful and a menace to life under certain conditions. The work places were well lighted, thoroughly clean and in every way well adapted to a variety of functions. It requires, however, no extended study of the situation to confirm the widespread view that the wetting of the brush is practically an essential of quickness, delicacy and efficiency in putting on the luminous paint. The composition of this paint was fully explained to me, the major portion of it being a zinc sulphid mixed with a minute quantity of radium.[2]

I was informed that the situation on the part of the public was generally misunderstood, and technically the opinion seemed to be that the minute quantity of radium introduced into the mouth could not possibly have caused the amount of damage elsewhere indicated and a matter of unmistakable record in the roentgenograms that are available. I was also informed that the company at all times had been most willing to improve working conditions and that steps had been taken some time ago to introduce a complete service for dental supervision. Periodic medical examinations will in the future be required, but all of this is of small purpose with reference to conditions in the past, which appear to have been quite different and the removal of which will in all probability eliminate the danger which, for a time at least, must have been a matter of serious importance.

My attention was called in this connection to the large extent to which luminous radium dials were manufactured in Switzerland, and it was suggested that information be secured from that country. I do not recall any reference in medical literature to radium necrosis, which would unquestionably have been observed if cases had occurred in Switzerland, where, however, methods of work may be quite different. In other words, unless the radium is introduced into the mouth through the wetting of the brush, the whole operation is in all probability entirely harmless. I have heard it said that some of the young women would at night present an almost luminous appearance, resulting possibly from the dust from the zinc sulphid, which is a comparatively cheap ingredient. Radium could not possibly be a factor in this luminosity if it actually should have occurred. Finally, I was told that the company in question probably manufactured only 10 per cent of all radium dials in this country, and that if responsible for the conditions indicated, like conditions should have appeared elsewhere. This, however, would require an extended investigation, which for the time being at least has not been feasible.[3]

Since many of the technical questions involved are outside the scope of my own investigations, I was most fortunate in securing information from a gentleman who in former years was actively engaged in radium manufacture and who is technically probably one of the most qualified in this country.[4] He was good enough to prepare for me an extended account of the process and materials involved, which as nearly as possible I give in his own language.

THE PROBABLE CAUSATIVE ELEMENT IN RADIUM NECROSIS

During the process of painting, in order to keep the brush finely pointed, the operator acquires the habit of shaping the brush by putting it between her lips, and in so doing, it is now suspected that a certain amount of self-phosphorescent material may reach and be deposited between the interspaces of the teeth, gums or tongue, thus causing or contributing to the ailment in question. Since in this process the operator deals with several substances, and is also otherwise exposed to various irritating agents, it is well to consider each agent or substance separately, and what action these could have alone, or in combination with others to provoke such conditions as are indicated.

The materials that each operator has to deal with are the following:

1. Undark, a composition of phosphorescent crystalline zinc sulphid compound containing small quantities of other elements, such as copper, manganese, lead, arsenic, thalium, uranium and selenium. In order to produce a luminous condition, the foregoing are mixed with various radioactive elements. The usual radioactive mixture contains radium, mesothorium and radiothorium.

The usual material an operator deals with most of the time contains various proportions of radioactive elements of joint radioactivity, equivalent to about 1 mg. of gamma radiation of radium element as an average, mixed with about 40 gm. of phosphorescent zinc sulphid in most minute subdivisions; ultimate particles of radioactive elements being rendered insoluble in ordinary solvents. This also applies to phosphorescent zinc sulphid crystals, which are not, or only to a limited extent, soluble in ordinary solvents.

2. The most commonly used adhesives are represented by a solution of gum arabic in water. Luminous material is mixed with this adhesive and painted. This adhesive, when put in the crucible for mixing, is not sterile since certain amounts of it remain in the crucible every day and are used with new material the following day. Crucibles remain exposed more or less to air, dust, etc. Furthermore, the camel's hair brush is not sterilized before or after working with luminous material or adhesives, and so also carries a certain amount of contamination from saliva and its contents.

CONDITIONS DURING OPERATIONS.

A consideration of the process of "pointing" the brush by moistening it between the lips will help in estimating approximately the probable amount of material that reaches the oral cavity. The brush is used for painting when dipped into the thick mixture of radioactive zinc sulphid with adhesive, and it can hold, when fully dipped into the mixture, from about 7 to 10 mg. of substance as a whole. The "pointing" of the brush, however, is done before dipping the brush into the mixture, or after removing as much of the mixture as is possible from the brush on to the side of the crucible. That is to say, at the time of "pointing," the brush does not hold more than a few milligrams at the most. When the operator "points" the brush between the lips, only a minute quantity of the mixture can remain on the lips, thus reaching the tongue, as larger amounts would be noticeable by the peculiar taste of the mixture.

Assuming that an operator repeats the operation of "pointing" several hundred times daily, the total amount of the material to reach the oral cavity could amount to from a few milligrams to about 100 mg. There is not, however, the probability that amounts larger than from 1 to 2 mg. remain constantly in the mouth, because of the taste and the probable spitting or swallowing.

It is interesting to speculate also on the probable distribution of the material that would be equally distributed throughout the mouth until it is either swallowed or disposed of otherwise. Further thought would seem to indicate that equal amounts of material present in the mouth continuously throughout the whole day, barring fluctuations such as the diminishing of average amounts during eating and drinking of water, could not amount to more than a few milligrams of zinc sulphid at a time.

---

[2] I have since learned that mesothorium is used in the composition at this plant, the radioactive effects of which would be very much stronger.

[3] The probable explanation for the nonoccurrence of such cases at other plants is that mesothorium has not been used and that the habit of wetting the brush with the lips was not followed, or at least not so generally, as at the Orange plant.

[4] Dr. Sochoky of New York.

AMOUNT OF RADIOACTIVITY.

Having assumed that a few milligrams of undark, of the quality containing from 1 mg. of radioactive element to 40 gm. of zinc, may remain constantly in the mouth during working hours, it appears that this amount would also be accompanied by from 25 to 50 millimicrograms, or from 0.000025 to 0.000050 mg. of radioactivity. It could be further supposed that larger amounts of material than those mentioned are probably swallowed. The question arises as to what effect, if any, this amount of radioactivity could produce locally. Such small doses of radioactivity in contact with the tissues, day in and day out, alone, do not seem to have any effect as such whatever. This can be seen from the experiences of the radium laboratories where chemists crystallize radium solutions every day; and furthermore, in the luminous material laboratories where large amounts of material are prepared, weighed, bottled, etc., and where chemists and physicists are exposed continuously to much stronger concentrations of radioactivity, in contact with their skin, lips and tongue, through the medium of cigarets, dust, etc. Assuming, however, that the above mentioned amounts of radioactivity present in the mouth are of sufficient intensity to start local trouble, their effect on the blood system would be noticeable before any local trouble could start. This is due to the fact that, of all the organs, the blood-making apparatus of the human body is the most sensitive to radioactivity. Taking this as an index and comparing it with the amounts that could be present in the oral cavity of the operator throughout the day, we reach these surprising facts:

The smallest single amount of radioactivity essential to produce visible microscopic or morphologic blood changes, such as increase of erythrocytes and leukocytes or decrease of leukocytes with decrease of erythrocytes following, would be in the order of about 20 micrograms injected intravenously in single doses or distributed in at least 2 microgram doses daily for longer periods of time, when injected intravenously; 20 micrograms injected in soluble form does not show any influence on the blood in a single dose. The amounts mentioned are about 2,000 times larger than those assumed in the case of operators. The radioactivity the operators work with, as mentioned before, is in insoluble form. Therefore, it could not, to any large extent, penetrate to the tissue and accumulate therein, and act, after a certain period of time, in a cumulative way. On the other hand, if we dismiss the possibility of its penetration into the tissue and the gradual accumulation, then the amount (as would be evident by the presence of radioactive elements in the jawbones, which could be easily detected) of radioactivity present in the mouth, although constantly present, is far too small to produce local destruction of the tissue such as is produced by larger amounts of radioactivity on the skin or mucous membranes. This applies to irritative qualities of radioactivity produced by beta and gamma radiations, whereas alpha radiation emitted by radium is not considered.

During the extraction of radioactive elements in laboratories, likewise their use in the medical profession, etc., burns and destruction of tissues occur as the result of exposure of the radioactive elements sealed in containers of glass or metal. Radiations that go through the containers consist only of beta and gamma rays, representing only a fraction, that is, 5 per cent., of the total radium energy. The rest of the energy represented by alpha radiation is screened off by the glass or other material of which the container is made.

The alpha radiation emitted by the radium elements is of very low penetrative power and is easily screened by two or four layers of ordinary cigaret paper, but it is very irritative to tissues. It would appear possible that small quantities of radioactive elements mixed with phosphorescent zinc sulphid and deposited on the tissue, acting on it for considerable intervals of time, may produce irritative effects by the above mentioned alpha radiations.

If these weak radiations are combined with physical chemical irritating effects of zinc sulphid and centered on a certain spot of tissue, for a long period of time, it could be assumed that under conditions it could produce local changes on the mucous membranes, not directly comparable to the necrotic or vesicant effect of beta and gamma radiations but sufficient to lower the resistance of the local tissues to the pathogenic bacteria's entrance and start of osteonecrosis.

That the cases in question are results of such joint effect of various agents, rather than of single ones, is the logical assumption, so much more so since effects of burns produced by radioactive elements are never progressive but heal eventually, contrary to the effects of the soft roentgen-ray radiations, and they never produce necrosis of the bone.

In order to substantiate the former assumption and so establish what agent or group of agents was responsible for the pathologic conditions in question, it is necessary to diagnose correctly the number of cases, the diagnosis to be centered on:

(*a*) Whether the disease is malignant or not, local or metastatic.

(*b*) Whether it is bone necrosis with presence of some predominant bacteria.

(*c*) Whether this necrosis is local.

(*d*) Whether it becomes constitutional, and if so, after how long a time after the appearance of the first symptom.

Culture from local tissues and blood studies should solve the foregoing question and solve the diagnosis.

COMMENT

The foregoing thoughtful but highly technical observations make a valuable contribution to the strictly scientific study of the subject. They unquestionably fall short in dealing with the medical aspects of the cases under observation, and, as indicated, a thorough diagnosis fully amplified by all necessary instrumental observations is of the first importance. Whatever may be the result of such investigations, they are not likely to set aside the very obvious fact and conclusion that the cases in question are of occupational origin, and that they should be brought within the plan and scope of the workmen's compensation for industrial diseases. I am able to add to the foregoing, though not directly bearing on the particular cases under consideration, the results of a valuable investigation into the physical condition of persons engaged in measuring radium preparations made by Dr. R. C. Williams of the U. S. Public Health Service, published, Dec. 21, 1923. The report covers observations made during a period of about one and one-half years, ending with July, 1923, on the physical condition of persons employed during that time in the radium section of the U. S. Bureau of Standards.

PHYSICAL CONDITION OF PERSONS MEASURING RADIUM PREPARATIONS

It is explained that the reasons for making this study were twofold: First, the necessity for periodic supervision of persons engaged in the constant handling of radium, in order to properly safeguard their health. Second, as a matter of scientific interest to note the physical effects upon radium workers of continued exposure to radiation. Dr. Williams takes occasion to point out that "it has been well known for several years that persons exposed to large amounts of radiation frequently experience harmful physical effects. Various general symptoms, such as headache, malaise, weakness, undue fatigue, unusual need of sleep, increased excitability, fretfulness, irritability, disordered menstruation, attacks of dizziness, etc., were said to be caused by long and repeated exposures to radioactive substances, but more recent experimental and clinical evidence shows that these general symptoms are perhaps not so frequent in occurrence nor so important as danger signals as are the now well recognized blood changes.

It does not fall within the present discussion to reconsider the facts disclosed by the investigation of Dr. Williams except that as a matter of record it may be useful to recall his conclusions as regards the extent of the effects of the exposure to radiation, depending on other facts but in particular on the (*a*) amount of radiation to which the subject is exposed; (*b*) length of time of exposure; (*c*) frequency of the exposures; (*d*) proximity of the radium to which the subject is exposed; (*e*) amount and character of protection afforded against radiation, and (*f*) character of the rays to which the subject is exposed.

I also quote the principal exposures and sources of exposure to radiation during the process of measuring radium at the Bureau of Standards.

1. Exposure when standing before the open safe for the purpose of finding, identifying and checking the particular tube desired.
2. The use of fingers on forceps in taking a tube from the container and placing it in the wooden carrier box.
3. Exposure when the tube is being placed on the instrument for reading.
4. Exposure as in 1 and 2 when the tube is being returned to the safe after the readings are completed.

The general conclusions regarding the results of physical examinations at the beginning of the study, limited to four males and five females, are stated as follows:

> No serious defects were found in any of the group. Two of the males had symptoms of the skin of the fingers and hands which are suggestive of the effects of radiation. One male attributes his nervousness and digestive disturbances to continued exposure to radiation. He states that members of his family, without actually knowing whether he had been exposed to radiation or not, could tell accurately by his increased nervousness and irritability that he had been exposed to radiation. Two females had enlarged thyroid glands. The cardiac findings in all the females are thought to be functional. Menstruation in the females had not been disturbed by exposure to radiation. One female (No. 5) had recently returned from two months' sick leave. A physician had made a clinical diagnosis of anemia and nerve fatigue. At the time of the physical examination made during this study she still felt nervous and depressed.

and furthermore that

> The physical examinations, therefore, seem to show that, of the nine persons examined, only two presented any signs of the effect of radiation on the skin, and that exposure to radiation apparently produced a lowering of blood pressure in the majority of cases. It was thought that there might exist a relation between the decrease of red or white blood cells in certain members of the group and the low blood pressure, but it appears, on careful study that such was not the case.

CONCLUSION

It is self evident from the foregoing that the situation is one of extraordinary complexity. Apparently, radium necrosis occurs only under certain and quite exceptional conditions. It is not the fact of general exposure to radioactive substances or nearness thereto, but, apparently, the direct result of introducing such substances in minute quantities into the mouth through the insanitary habit of penciling the point of the brush with the lips. As has been said before, every case personally investigated gives an unmistakable history of this habit, while the numerous roentgenograms clearly indicate the consequences to both the roots of the teeth and the jawbone. It may be argued, of course, that other portions of the mouth, particularly the tongue or the lips, should be affected, but the mucous membrane of tissues might not necessarily have the same affinities for radioactive substances as the more sensitive roots of the teeth and possibly the bone of the jaw. As bearing indirectly on the foregoing cases, I am able to refer to an extremely interesting occurrence brought to my attention by Dr. Davidson of Newark. He has for some time past been treating a patient for radium necrosis who did not work at the radium plant nor was ever exposed to radioactive substances otherwise than that he had been treated for a tumor of the jaw with radium, as the result of which treatment necrosis developed, and is still developing, being only partly under curative control. I have seen the case myself and am convinced that the condition is as stated, and the direct result of radium exposure. Aside from the foregoing evidence with reference to particular cases, I may mention one additional case of which the details, unfortunately, are not obtainable, but which was brought to my attention by Dr. Andrew McGowan of East Orange, who writes: "Several years ago, a girl came to me with a marked swelling of the gums, looseness of teeth and indications of a necrotic process. She said she used a small brush and shaped it with her mouth before painting, although a small container of water was supplied for the purpose. Unfortunately, she did not return for treatment, so the history of the case ends at that point."

How many cases there are, or may have been, is, of course, a matter of mere conjecture. One dentist, Dr. B. T. Foulkes, writes me: "I have any number of patients who have been employed and are still employed in the so-called radium plant of Orange, but I have never had a case of any kind of necrosis among them. I have read so much about this in the newspapers at different times that I have inquired from my patients as to how this material is used, and I find that many put this so-called radium in their mouth. If this is the case, I see no reason why radium necrosis should not develop, provided, of course, the material contains radioactive substances."

At the outset of this investigation, I was frequently confronted with the statement that the cases had been diagnosed as phosphorus necrosis; but they could not be that, since phosphorus substances are not used. While the two forms of necrosis unquestionably resemble each other quite closely, it should not be difficult for one thoroughly qualified for the purpose to differentiate the one type from the other. In any event, however, we are dealing with an entirely new occupational affection demanding the utmost attention on the part of those who are in a position to render the necessary technical assistance, but at the same time it is a safe assumption that if the insanitary habit of wetting the brush with the lips is done away with the disease itself will probably tend to disappear, or in any event become extremely rare.

ABSTRACT OF DISCUSSION

Dr. J. P. P. Knef, Newark, N. J.: The clock and watch industry of the United States is very large, and the number of operators and employees handling various types of luminous material runs into hundreds. Until the causative element of the apparently unknown disease is finally established, and until a reliable therapeutic method or methods dealing with the cure of this disease is found, every operator is exposed to uncontrollable danger which may terminate prematurely his or her life.

Method of Securing County Health Department.—County authorities ordinarily are not disposed to appropriate funds for health work unless they are convinced that public sentiment in the county will approve their action. Therefore, the usual first step in securing the establishment of a county health department is to conduct a campaign of education in the county to show the advantages and economy of public expenditures for this purpose.—Parran, Thomas, Jr.: *Pub. Health Rep.* **40**:983 (May 15) 1925.

THE VITAL CAPACITY OF THE LUNGS IN PNEUMONIA*

JOHN H. ARNETT, M.D.
Instructor in Medicine, University of Pennsylvania School of Medicine; Assistant in Medicine, University Hospital
PHILADELPHIA

The vital capacity was defined by Hutchinson[1] as the quantity of air a person is capable of expiring after the deepest possible inspiration. Although many thoracic diseases are known to diminish the vital capacity, in few, if any, is the reduction more striking than in pneumonia. The sudden fall of the vital capacity in pneumonia and the subsequent increase incident to uncomplicated convalescence are sufficiently uniform to be of diagnostic significance. The present paper, based on a study of thirty-two cases of pneumonia in the medical wards of the University Hospital, will deal with the diagnostic and prognostic aspects of the vital capacity in this disease.

Unfortunately, wide variations in the vital capacity are to be found in persons of the same weight and stature, so that as Arnett and Kornblum[2] have pointed out, little assistance can be expected from this test in the early diagnosis of pulmonary tuberculosis or cardiac disease, unless previous readings have been taken while the patient was still in good health. Individual variations from West's surface area standard amounting to 10 or 20 per cent. are quite frequent, and where elderly persons are under consideration Bowen[3] shows that reductions amounting to 50 per cent. are to be expected. Readings below 50 per cent. of the estimated normal are rarely found in healthy persons, and, moreover, as Myers[4] points out, few if any acute infections except pneumonia cause reductions of such magnitude. If, therefore, pneumonia is suspected, a vital capacity of less than 50 per cent. of the standard is strong confirmatory evidence in favor of such a diagnosis. In the group of thirty-two cases on which the present paper is based, the average of the lowest readings obtained was 30 per cent. of West's standard, and in only three patients (Cases 13, 18 and 20) were the lowest readings above 50 per cent. of this standard; each of the three cases in question was atypical in its clinical manifestations.

The vital capacity began to rise usually on the day of the crisis, though sometimes the rise would begin a day or two earlier or later. In ten cases of lobar pneumonia without pulmonary complications, vital capacity determinations were made prior to the crisis. The lowest reading was given before the crisis in seven, on the day after the crisis in one, on the day of the crisis in one, and in one case equally low readings were obtained both before and after the crisis. It was frequently possible, therefore, to predict in advance the advent of the crisis.

The average daily increase in the uncomplicated cases of lobar pneumonia was 131 c.c. during the first five to ten days from the crisis. Only in Case 4 was the average rise less than 100 c.c. a day, and this was due to an unaccountable rise to 2,000 c.c. on the day of the crisis. In this case the average daily increase in the vital capacity for the five days following the day after the crisis was 240 c.c. It appears, therefore, that a rapid rise is quite constant in uncomplicated pneumonia, though this rise is by no means steady, as a glance at the charts will show. In the three cases of broncho-

Vital Capacity Data in Pneumonia, Delayed Resolution, and Empyema

Case	Sex*	Age	Height, Cm.	Weight, Kg.	Surface Area, Sq. M.	Estimated Vital Capacity, C.c. (West's Standard)	(A) Lowest Observed Vital Capacity, C.c.	Percentage of West's Standard	(B) Highest Observed Vital Capacity, C.c.	Percentage of West's Standard	Interval Between A and B, Days	First Vital Capacity Reading, Days Since Onset of Pneumonia	Clinical Condition
1	♂	34	181	60	1.77	4,425	1,250	28	3,850	87	179	6	Lobar pnuemonia, uncomplicated
2	♂	19	168	63	1.72	4,300	700	16	2,400	56	14	5	Lobar pneumonia, uncomplicated
3	♂	28	172	65	1.78	4,450	1,850	42	3,300	74	4	5	Lobar pneumonia, uncomplicated
4	♂	47	169	60	1.70	4,250	1,300	31	3,850	91	338	3	Lobar pneumonia, uncomplicated
5	♂	18	175	70	1.85	4,625	700	15	2,800	61	28	7	Lobar pneumonia, uncomplicated
6	♂	14	175	66	1.80	4,500	1,150	26	2,900	65	126	7	Lobar pneumonia, uncomplicated
7	♂	21	175	69	1.84	4,600	1,350	29	3,050	66	10	3	Lobar pneumonia, uncomplicated
8	♂	42	167	69	1.79	4,475	700	16	3,350	75	138	8	Lobar pneumonia, uncomplicated
9	♂	40	161	50	1.52	3,800	1,000	26	3,000	79	356	7	Lobar pneumonia, uncomplicated
10	♂	22	189	81	2.08	5,200	1,450	28	3,000	58	9	6	Lobar pneumonia, uncomplicated
11	♂	21	167	62	1.70	4,250	1,450	34	3,200	75	11	5	Lobar pneumonia, uncomplicated
12	♀	47	157	52	1.50	3,000	1,000	33	3,000	100	153	9	Lobar pneumonia, uncomplicated
13	♂	18	172	60	1.72	4,300	2,300	53	4,200	98	17	10	Lobar pneumonia, uncomplicated
14	♂	35	172	67	1.81	4,525	1,350	30	1,900	42	2	4	Lobar pneumonia; death
15	♂	42	171	57	1.68	4,200	1,000	24	1,000	24	0	6	Lobar pneumonia; death
16	♂	24	174	69	1.83	4,575	700	15	700	15	1	4	Lobar pneumonia; death
17	♂	59	180	70	1.90	4,750	1,000	21	1,000	21	1	5	Lobar pneumonia; death
18	♀	15	142	46	1.32	2,640	1,650	62	2,700	102	14	13	Bronchopneumonia
19	♂	15	170	57	1.66	4,150	1,600	39	3,700	89	138	3	Bronchopneumonia
20	♂	23	170	61	1.71	4,275	2,400	56	4,100	96	41	5	Bronchopneumonia
21	♂	18	165	61	1.68	4,200	800	19	3,250	77	117	9	Delayed resolution
22	♂	24	162	60	1.64	4,100	1,500	37	2,550	62	16	14	Delayed resolution
23	♂	15	172	57	1.68	4,200	1,250	30	2,700	64	30	13	Delayed resolution
24	♀	54	160	52	1.52	3,040	900	30	2,500	82	215	8	Delayed resolution
25	♀	16	157	45	1.42	2,840	1,300	46	3,050	107	280	5	Delayed resolution
26	♂	36	174	80	1.94	4,850	800	16	3,000	62	35	13	Delayed resolution
27	♀	56	177	76	1.93	3,860	1,050	27	3,350	87	147	7	Delayed resolution
28	♂	31	183	66	1.86	4,650	1,200	26	2,800	60	3	3	Empyema
29	♂	33	165	63	1.70	4,250	1,300	31	4,700	111	177	6	Empyema
30	♂	48	174	85	2.00	5,000	650	13	3,450	69	412	8	Empyema
31	♂	16	167	54	1.61	4,025	1,050	26	3,400	85	411	16	Empyema
32	♂	27	162	58	1.62	4,050	1,300	32	3,450	85	416	37	Empyema

* In this column, ♂ means male; ♀, female.
The author is indebted to Dr. Simon S. Leopold for the vital capacity readings of Cases 18 and 27.

---

* From the Medical Division of the University Hospital.

[1] Hutchinson, J.: On the Capacity of the Lungs, and on the Respiratory Functions, with a View to Establishing a Precise and Easy Method of Detecting Disease by the Spirometer, M. Chir. Tr. **29**: 137, 1846.

[2] Arnett, J. H., and Kornblum, K.: Vital Capacity: An Inquiry into Its Value as a Diagnostic Procedure, Ann. Clin. Med. **3**: 225 (Oct.) 1924.

[3] Bowen, B.: The Relation of Age and Obesity to Vital Capacity, Arch. Int. Med. **31**: 579 (April) 1923.

[4] Myers, J. A.: Studies on the Respiratory Organs in Health and Disease, VI, the Significance of the Vital Capacity Test in Pulmonary Tuberculosis, Bronchial Asthma, Pneumonia and an Acute Infection Outside the Respiratory Tract, Arch. Int. Med. **30**: 648 (Nov.) 1922.

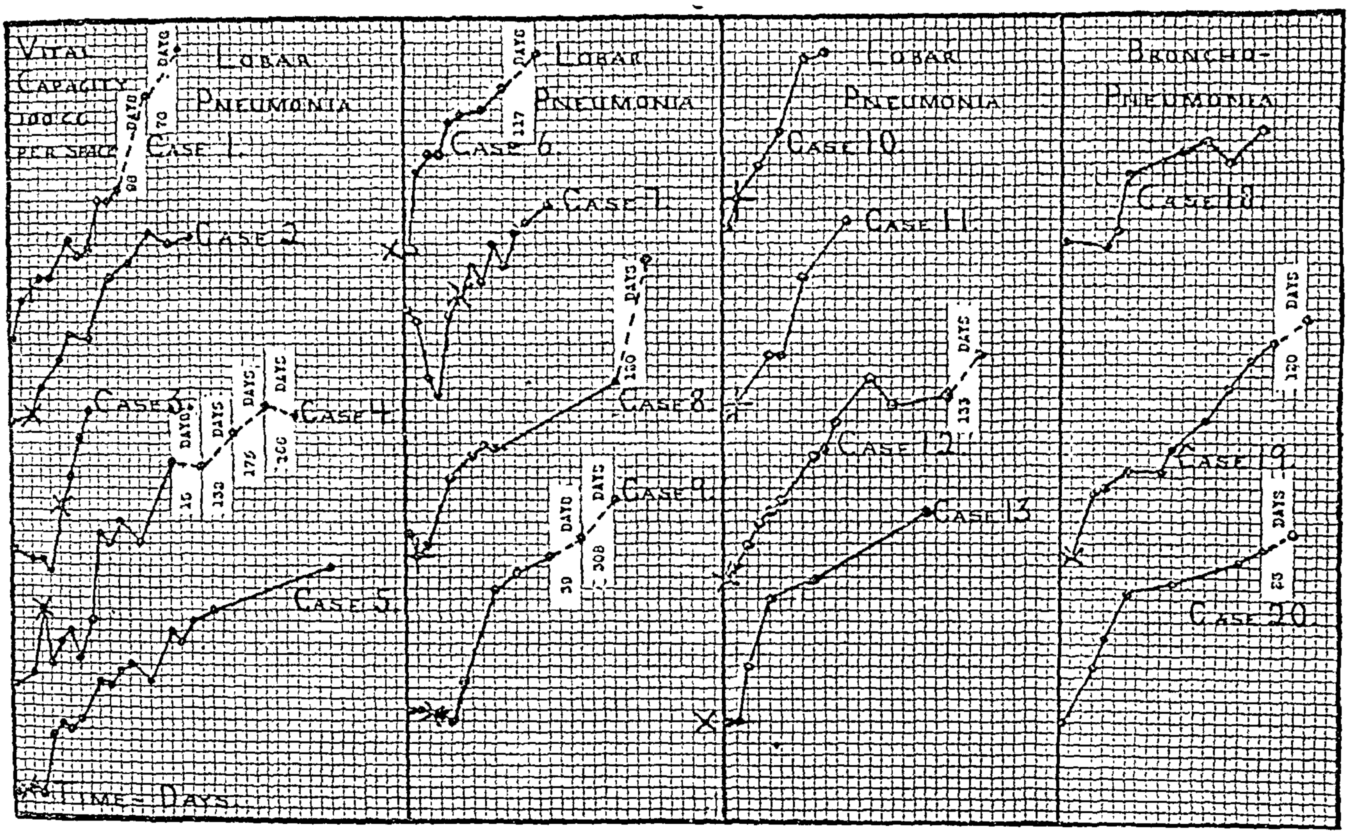


Chart 1.—Vital capacity in lobar pneumonia and bronchopneumonia: X indicates crisis; rapid rise in vital capacity incident to uncomplicated convalescence may be noted. By using the table in conjunction with the charts, one may find the individual vital capacity readings in cubic centimeters or percentage of West's standard; also the body measurements, etc.

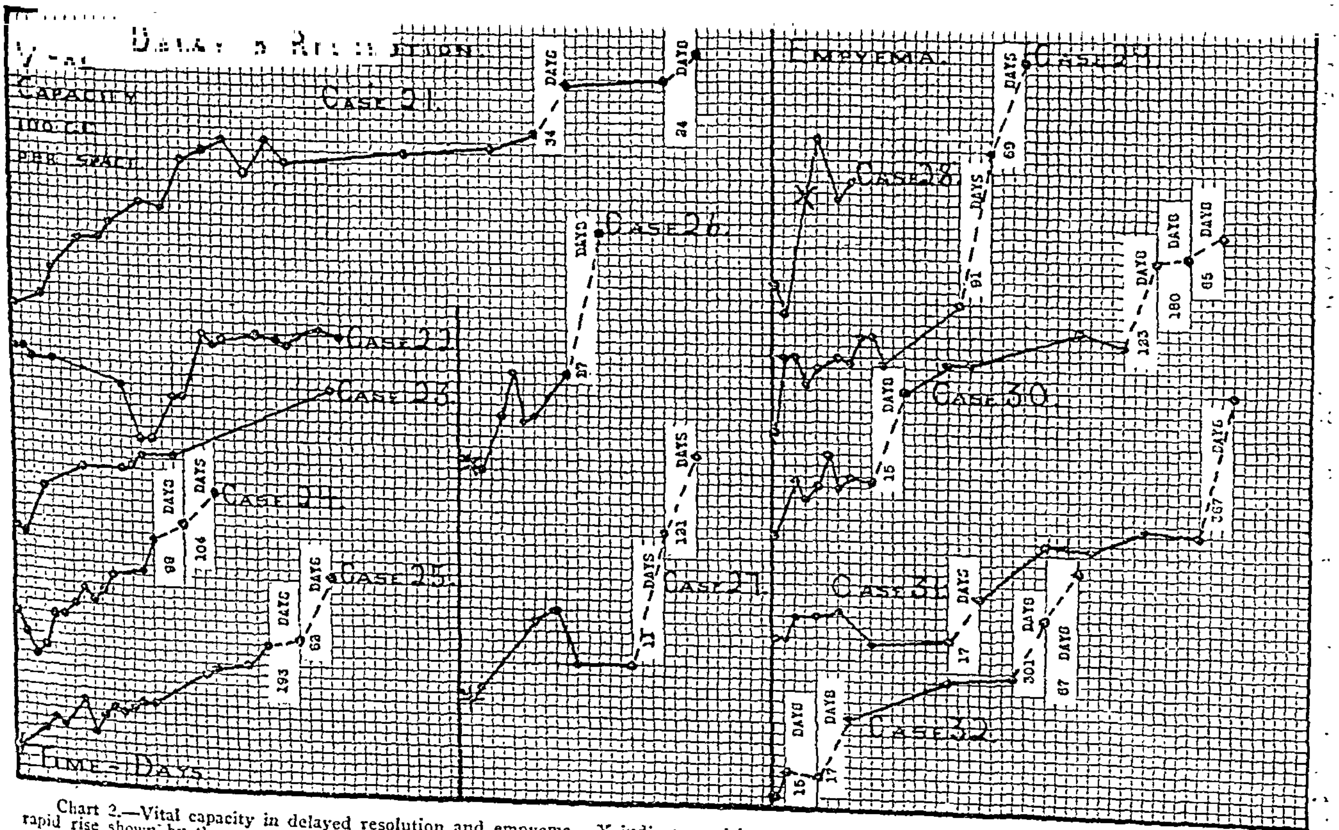


Chart 2.—Vital capacity in delayed resolution and empyema. X indicates crisis. The gradual rise here shown may be compared with the rapid rise shown by the pneumonia cases in Chart 1.

pneumonia in this series the average increase during the five to ten days from the time when the vital capacity commenced to rise was 112 c.c. each day, while in the cases of delayed resolution and empyema the average was 87 c.c. and 41 c.c., respectively. It will be seen by comparing the charts of unresolved pneumonia cases with those of empyema that there is not a sufficient difference in the vital capacity between these conditions to be of diagnostic significance, whereas if either chart is compared with that of a case of uncomplicated pneumonia the difference is striking. These data would indicate that if, from five to ten days from the crisis, a patient had failed to increase at the rate of at least 100 c.c. daily, a complication or delayed resolution should be suspected.

Few reports have been published as yet on the behavior of the vital capacity during the months of convalescence from pneumonia or empyema. Shepard and Myers [5] have shown, however, that college students giving a history of pneumonia show readings slightly below those of a selected group of normal students. In the thirty-two cases here reported, the average period of observation was 119 days; in three cases, vital capacity determinations were made over a period of more than a year. One hundred per cent. of the standard was reached by one lobar pneumonia, one bronchopneumonia, one delayed resolution and one empyema case in 153 days, fourteen days, 280 days and 177 days, respectively. The bronchopneumonia patient who returned so rapidly to normal (Case 18) was atypical in many other respects. In eight patients examined from 100 to 200 days after discharge, the average vital capacity gain each day was 6.2 c.c. In two patients examined from 200 to 300 days after discharge, the average daily gain was 2.3 c.c. In five patients examined from 300 to 400 days after discharge, the average daily gain was 3.2 c.c. No significant difference between the average daily rise of the pneumonia and empyema cases was noted during these periods after discharge. These data would indicate that some cases exhibit a relatively rapid return to approximately normal vital capacity figures, while in other cases the improvement is very gradual, extending over months and even years. Probably the majority of cases never fully reach what for them would be normal.

CONCLUSIONS

1. In pneumonia, the vital capacity is greatly reduced early in the disease. The determination may therefore be of distinct diagnostic value in doubtful cases.
2. The greatest reduction generally occurs shortly before the crisis. The advent of the crisis may therefore at times be predicted in advance.
3. Cases of uncomplicated pneumonia almost constantly exhibit a rapid rise in the vital capacity in the first five to ten days from the crisis. Patients with empyema and delayed resolution do not exhibit such a rapid rise. The vital capacity may therefore assist in diagnosing empyema or unresolved pneumonia.
4. The vital capacity increases gradually for months after clinical recovery from pneumonia or empyema has occurred. In many cases it probably never entirely returns to normal.

262 South Twenty-First Street.

---

[5] Shepard, W. P., and Myers, J. A.: The Respiratory Organs in Health and in Disease, XVI, a Comparison of Vital Capacity Standards in Three Thousand Five Hundred and Thirty-Four Male University Students, Arch. Int. Med. 35: 377 (March) 1925.

FACTORY VENTILATION AND INDUSTRIAL TUBERCULOSIS *

C.-E. A. WINSLOW
Professor of Public Health, Yale University School of Medicine
NEW HAVEN, CONN.

The first definite step toward the first hand scientific study of industrial hygiene in the United States was inspired by a problem of factory ventilation. The objectionable atmospheric conditions in a rope factory located in a suburb of Boston led to the introduction into the Massachusetts legislature by Hon. Andrew J. Peters (later mayor of the city) of a resolution calling for an investigation of the whole subject of industrial hazards by the state board of health. This was in 1904, and the brief report of ten printed pages submitted by the board in pursuance of this act was the beginning of a most significant movement. It led to a second and more exhaustive study by the Massachusetts State Board of Health in 1905, and to the employment for the first time in America of expert medical inspectors of factories in 1907; and it was the stimulus that induced me to offer the pioneer course of lectures on industrial hygiene in this country at the Massachusetts Institute of Technology in the latter year.

The development of interest in industrial hygiene on the part of federal, state and local health authorities, industrial firms and universities, during the last quarter-century has been nothing less than phenomenal. In the interest that has been devoted to factory accidents and industrial poisons, however, the importance of the adequate ventilation of factories and workshops has received something less than its due share of attention; and it is still pertinent to emphasize its significance, both to the medical profession and to the laity.

The problem of factory ventilation is a twofold one. In every industrial establishment we have, first of all, to deal with the same fundamental requirements as to air conditioning that we meet in the schoolroom or the auditorium; and in certain workrooms we are confronted with very special and peculiar ventilation problems created by the presence of toxic fumes and injurious dusts.

GENERAL PROBLEMS

The first of these problems, that which concerns the vitiation of the atmosphere due merely to human occupancy, we may here dismiss with relatively brief consideration. The harmful effects of the air of an ordinary, badly ventilated room are, as we now know, due not to lack of oxygen or to excess of carbon dioxid or to the presence of mysterious toxic products, but to the physical effects of high temperature, abnormal humidity and lack of air movement. We must be constantly on our guard, however, against the assumption that, because bad ventilation affects us merely by interference with the heat-regulating machinery of the body, the effects produced are unimportant. The researches of the last twenty years have made it abundantly clear that even very slight degrees of overheating produce serious results which are recorded by direct physiologic responses, such as increase in body temperature, pulse rate and respiration and lowered vasomotor tone—by lowered working efficiency—and by increased susceptibility to respiratory disease.

The careful investigations of the New York State Commission on Ventilation showed that the amount

---

* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

of physical work performed under otherwise equivalent conditions was reduced by 15 per cent. at 75 F. as compared to 68, and by 37 per cent. at 85 as compared with 68. In actual practice, Vernon, in England, has found that in tin-plate mills with good ventilation the summer output is only 3 per cent. less than that obtained in the winter months, while in mills without good ventilation the corresponding falling off amounts to 13 per cent. The total economic loss due to the overheating of factories must be very large indeed.

Even more striking, perhaps, is the effect of overheated rooms in winter on susceptibility to acute respiratory infections of various sorts. The New York State Commission on Ventilation made a careful comparison of the incidence of such infections among some 5,000 school children in three groups of schoolrooms maintained, respectively, at average temperature of 59, 66.5 and 68.5. The first two groups, in the cold and the cool rooms, showed essentially identical results; but the third group, in the warm rooms, had an 18 per cent. excess in absence due to respiratory disease, and a 70 per cent. excess of respiratory disease among pupils in attendance. The loss of industrial efficiency due to absenteeism resulting from overheating is another far reaching cause of subnormal production.

It must, then, be recognized as essential in sound factory management to provide a thermometer in every workroom, to designate the foreman or some other proper person to read it at regular intervals, and to take definite steps for the improvement of air conditions whenever the temperature passes the critical point of 68. The first step will naturally be to moderate artificial heat sources, for the cause of overheating in many a factory workroom is not lack of ventilation in the proper sense, but merely the fact that radiators are turned on when they should be turned off. If, on the other hand, the overheating is really due to human occupancy, the remedy must be sought by supplying fresh cool air in such a way as to avoid objectionable drafts. In a large proportion of cases the problem may be solved without elaborate machinery by the application of a reasonable knowledge of physics and a modicum of horse sense. Frequently, the admission of fresh air from the windows over deflecting boards to project it upward, and with radiators below, to temper it in cold weather, and the provision of a gravity exhaust duct for the removal of hot vitiated air from some point near the ceiling will meet all the requirements of the case. In other instances, where the workrooms are large and crowded or where the problem is accentuated by stoves, ovens or other heat sources, or by the presence of excessive moisture, mechanical ventilation with the use of fans may prove essential.

POISONOUS FUMES AND DUSTS

In addition to such more or less universal problems of air conditioning as have been so far discussed, we must deal, in many industrial processes, with the very special conditions produced by the presence of poisonous fumes and dusts.

Carbon monoxid is perhaps the most important of all atmospheric poisons, since it menaces life and health, not only in the factory but also in the garage and in the home. This highly toxic substance is, of course, produced instead of carbon dioxid whenever incomplete combustion takes place. One half of one part per thousand of carbon monoxid has proved poisonous, and exposure to two or three parts per thousand for half an hour may be dangerous to life. In industry, the greatest number of cases of carbon monoxid poisoning occur as a result of exposure to producer and blast-furnace gases in the steel and allied industries. Among less than a thousand men employed about Illinois blast furnaces, thirteen fatal cases occurred during a period of four years, with sixty-five severe and 216 mild cases of poisoning a year.

Poisonous lead salts, for the most part, enter the body by way of the digestive tract, although it is possible for poisoning to take place by absorption through the skin (as is the case with the new tetra-ethyl lead compound used in motor fuels) or as a result of dust breathed into the lungs. The normal way by which lead gets to the digestive tract is, however, by the swallowing of inhaled atmospheric dust. The trades chiefly affected are white lead making, paint mixing and dry color grinding, the manufacture of storage batteries, the making of porcelain and enamelware and, above all, painting, particularly the painting of automobile bodies and similar processes that involve spray processes and dry sandpapering. Over a hundred different industries have, however, contributed well defined cases of lead poisoning to the literature of the subject. In the state of Ohio, to take only one recently reported body of statistics, there were reported to the state department of health, during a period of ten years, 1,295 cases of industrial lead poisoning, and the vast majority of such poisonings were due to the inhalation of lead dust and fumes. In the hospitals of Detroit during three years, there were treated 108 cases of lead poisoning, of which sixty-seven occurred in a single factory among a group of men employed in the dry sandpapering of lead paint.

Carbon monoxid and lead are the most important of the purely industrial poisons, but there are many others that affect smaller groups of workers in a more or less intensive degree. Mercury salts, which cause the "hatters' shakes," arsenic and other heavy metals, the fumes of brass and zinc, the oxids of nitrogen, which produce acute and often fatal injuries to the lungs of munition and chemical workers, the irritant halogens, and a whole host of organic poisons, such as wood alcohol, carbon bisulphid, anilin and benzene and their derivatives, the nitrobenzenes and trinitrotoluene, are all common and serious industrial poisons. The dusts from certain tropical woods produce painful skin irritations similar to those which result from ivy poisoning. The increasing use of benzene in industry has attracted special attention during the last few years. A committee of the National Safety Council has been studying the problem, with the result that fifteen deaths and eighty-three more or less serious illnesses have been traced to this substance during the last few years. Furthermore, the committee, in the examination of a group of eighty-four workers exposed to benzene fumes, found that 15 per cent. of them showed a white blood cell count so low as to be strikingly suggestive of benzene poisoning, indicating, as in the case of carbon monoxid and lead, that besides the more obvious acute cases there exists in industry a considerable amount of mild undetected chronic poisoning.

DUSTS PREDISPOSING TO TUBERCULOSIS

Finally, there remains to be considered the effect of certain industrial dusts which are not toxic in the ordinary sense, but which exert a very specific and important influence on the prevalence of tuberculosis and other diseases of the respiratory tract, a problem that is one of the most important, and still one of the most neglected in the whole field of industrial hygiene.

The existence of a form of tuberculosis specifically related to industrial employment has been recognized from very ancient days. Hippocrates speaks of the metal miner as a man who "breathes with difficulty" and "is of pale, wan complexion." Agricola, in his book on metallurgy (published in 1556), states that "some mines are so dry that they are entirely devoid of water, and this dryness causes the workman even greater harm, for the dust which is stirred and beaten up by digging penetrates into the windpipe and lungs, and produces difficulty in breathing, and the disease which the Greeks call ἄσθμα (asthma). If the dust has corrosive qualities, it eats away the lungs, and implants consumption in the body; hence in the mines of the Carpathian Mountains women are found who have married seven husbands, all of whom this terrible consumption has carried off to a premature death."

Table 1.—*Mortality from Pulmonary Tuberculosis Among Granite Cutters Compared with That of the General Adult Population of Vermont*

Period	Deaths per 100,000 Population Granite Cutters	Deaths per 100,000 Population Adult Population of State
1896-1899	394	190
1900-1904	353	166
1905-1909	719	149
1910-1914	801	120
1915-1918	1,064	108

How little the problem has changed in 400 years is clearly indicated by statistics recently collected in the United States. The problem has been somewhat confused by the careless use of industrial insurance statistics based on the ratio of tuberculosis deaths to total deaths and involving the fallacious comparison of tuberculosis ratios for so-called dusty trades with similar ratios for the general population as a whole, ignoring entirely important differences in social and economic status. For at least two groups of workers in the United States exposed to silica dust we have, however, full and controlled data. For the granite cutters of Vermont, Hoffman[1] gives the striking figures reproduced in Table 1. The steady increase of mortality among the granite cutters is attributed to an increasing dust hazard created by the use of pneumatic tools.

An altogether similar case is that of a Connecticut ax factory studied by Drury.[2] The factory is situated in an otherwise agricultural district, and through the circumstance that both the superintendent and the medical consultant of the factory had been in the employ of the company for twenty years, it was possible to follow up every death certificate in the four adjoining towns and determine the actual occupation of the deceased. The startling results obtained are indicated in Table 2.

Thus, we find the entire population of the mill district showing a tuberculosis rate of 200 as compared with 150 for the state as a whole. The mill population itself has a rate rising to 650, and the group of polishers and grinders the astounding rate of 1,900. The other employees of the mill are not entirely comparable in age, race and general social and economic status with the polishers and grinders, but it is evident that a death rate among polishers and grinders ten times the normal figure can be accounted for only by the specific hazards of their occupation. Nor is tuberculosis the only form in which they pay a penalty for their deadly employment. Dr. Drury reports that the mortality from pulmonary infections other than tuberculosis for the period 1900 to 1919 was 430 per hundred thousand for the polishers and grinders, as compared with 170 for the other employees of the ax factory.

Such conditions as those which have just been cited are to be looked for in one particular group of industrial processes—those which involve exposure to finely divided silica dust. It is probable that the inhalation of very large amounts of dust of any kind produces some irritation of the mucous membranes and may perhaps favor the development of acute diseases of the respiratory tract, such as bronchitis; so far as the dusts of vegetable origin are concerned, there is, however, very little concrete evidence that such is the case. Among those exposed to dusts like coal and cement, on the other hand, we have clear evidence of an excessive incidence of the acute respiratory diseases. Dublin reported that the influenza-pneumonia mortality in 1918 was twice as high among coal miners as in the general industrial population. As far as tuberculosis is concerned, however, coal and cement dust seem to produce a state of immunity rather than one of increased susceptibility. Hoffman finds that the coal-mining districts have a mortality from acute respiratory diseases 28 per cent. above normal, but that these districts have a tuberculosis mortality 21 per cent. less than that for the rest of the state.

The reason for this difference in the action of the different kinds of dust is still very obscure. We know that the inhalation of either coal or silica dust produces quite definite fibrotic changes in the lungs, a process known in general, and without reference to the particular type of dust involved, as pneumonoconiosis. The condition that results is called anthracosis when it is due to coal dust, silicosis when it is due to silica dust. Both anthracosis and silicosis increase susceptibility to acute respiratory diseases, such as bronchitis and pneumonia; but silicosis also predisposes to tuberculosis, while anthracosis does not. Krause believes that the peculiar effect of the silica dust is due largely to the fact that dust of this type is less readily removed from the lung and therefore produces a higher degree of fibrosis, with consequent blocking of the lymph channels of the lung. English students of this problem are inclined to postulate the formation of colloidal silica, which they believe exerts a specific chemical effect on the cells of the lung tissue.[3] Whatever the explanation, the facts are very clear. It is among metal miners, marble and granite workers, sand-blasters, potters, grinders and polishers—the industries exposed to silica dust—that industrial tuberculosis becomes of supreme importance.

Table 2.—*Mortality from Pulmonary Tuberculosis Among the Employees of a Connecticut Ax Factory as Compared with That of the Population of Adjacent Towns and of the State as a Whole, 1900-1919*

	Deaths per 100,000
State of Connecticut	150
State of Connecticut, male population	170
Ax factory district (three towns)	200
Employees of ax factory (all)	650
Employees of ax factory, polishers and grinders	1,900
Employees of ax factory, all others	160

---

[1] Hoffman, F. L.: The Problem of Dust Phthisis in the Granite Stone Industry, Bull. 293, U. S. Bureau of Labor Statistics, May, 1922.

[2] Drury, W. H.: The Incidence of Tuberculosis Among Polishers and Grinders in an Ax Factory, Pub. Health Rep. **36**: 159 (Feb. 4) 1921.

[3] An excellent summary of the literature on the pathology of silicosis is given by Greenburg, L.: Studies on the Industrial Dust Problem, Pub. Health Rep. **40**: 291 (Feb. 13) 1925.

METHODS OF CONTROL

From the standpoint of practical control, the first problem to be considered in connection with such dust and poison hazards as those which have been discussed in preceding pages is the possibility of eliminating the original source of the danger. In the case of lead poisoning among painters, for example, the only really satisfactory procedure is the substitution of zinc paints for the poisonous lead compounds, such as has been brought about to a limited degree through legal regulations in force in France.

Table 3.—*Efficiency of Respirator and Helmet in Controlling the Dust Content of Air from a Sand-Blast Chamber*

Source of Air	Average Dust Particles per Cubic Foot
Untreated air of chamber	6,880,000
Air passed through respirator alone	4,549,000
Air passed through helmet and respirator	2,047,000
Air passed through helmet alone, but with positive air supply	368,000
Air passed through helmet with positive air supply and respirator	156,000

Again, the harmful substance may be used but may be handled in enclosed containers so that its escape into the atmosphere is minimized. In the manufacture of white lead, many processes are now carried out under water or oil, so that practically no dust need be present in the air of the workroom; and many benzene processes are similarly rendered safe by carrying them out in a system of closed containers.

Dusty trades may also be rendered less hazardous by the use of wet or enclosed processes. In the South African mines, the use of water sprays has cut the dust content of the air to less than a tenth of its former figure. In 1912, 32 per cent. of a typical group of these miners showed silicosis or tuberculosis; in 1923, only 3 per cent. of a similar group were affected. A more general mode of protection is the installation of systems of special exhaust ventilation such as are used in good grinding and polishing shops, where hoods are placed over (or under) the wheels and connected by ducts with powerful exhaust fans. The chief conditions essential to the success of such a system are four: the design of the hoods themselves so that the point where the dust is generated may be covered as completely as possible without interfering with the work, and as closely as possible so that a full suction velocity may be maintained; the arrangement of the suction draft so that it may operate with and not against the centrifugal force which throws the dust particles from the wheel; the elimination of all obstacles between the hood and the main exhaust duct which may decrease the velocity of suction, and the maintenance of an adequate suction head in the main exhaust duct itself.

Observations made by Greenburg and myself show that such systems of special exhaust ventilation may keep the air of a grinding shop almost as free from dust as the atmosphere of an ordinary room. In one typical workshop, with forty-nine polishing wheels more or less constantly in operation, the dust content of the air was kept down to 200,000 particles per cubic foot with the exhaust system in operation, while, when the velocity of the exhaust fan was reduced, the count rose to 863,000 particles.[4]

Finally, in certain industrial processes, as in packing operations, in marble and granite workings, and in the sand-blasting of large castings, it is impossible by any of the means previously described to keep the air of the workplace free from dangerous concentrations of mineral and metallic (or poisonous) dusts. In such cases as this, the only alternative is the wearing of respirators that filter out the dust particles from the air before it is drawn into the respiratory tract, or of helmets that exclude the dusty atmosphere more or less completely from the mouth and nose and supply pure air for breathing from some other source. All such devices are uncomfortable and irksome to the wearer, and the necessity for using them should be avoided wherever possible by the installation of the other devices which have been considered above. In certain employments, however, the respirator or helmet offers the only possible means of protection.

How effective these devices may be (particularly the helmet with positive air supply) is indicated by Table 3, from studies conducted in a Bridgeport sand-blast chamber.[5]

Respirators for protection against dusts are usually made of rubber, fitting over the mouth and nose and including a filtering layer of cloth or sponge. Their efficiency varies widely and requires careful study in the individual case. The use of a helmet supplied through a tube with fresh air, creating an outward current through its openings, will often, perhaps, serve better than any of these filtering devices, and will prove more comfortable when the worker remains in a given place, so that the air supply for the helmet can be easily maintained.

We cannot, of course, assume that the dust hazard has been effectively controlled merely because one or the other of these protective devices has been introduced. Enclosed processes, wet processes, local exhaust systems and respirators may work efficiently or inefficiently, according to their construction and operation in relation to a given situation. In the very ax factory, cited above, which showed such an appalling death rate, a wet grinding process was in use; and this case furnished a striking demonstration of the fact that even wet grinding may prove an exceedingly hazardous occupation, if conducted on soft wheels of natural sandstone and without adequate control.

Table 4.—*Comparative Mortality from Pulmonary Tuberculosis in Certain Occupations*

	England and Wales, *1910-1912*
All occupied males	141
Clergymen	45
Coal miners	75
Messengers, porters, watchmen	252
Seamen, etc., merchant service	257
Potters, earthenware manufacturers*	282
Tool, scissors, file, saw, needle makers*	306
Inn, hotel servants	309
Lead miners*	335
Costermongers, hawkers	419
File makers*	434
Cutlers, scissors makers*	466
Tin miners*	678

* Exposed to silica dust.

Nor is it at all possible to judge of the seriousness of a dust hazard by mere visual inspection. An abrasive factory at Niagara Falls containing 160,000,000 particles per cubic foot did not look, when I inspected it, any dustier than many an ordinary workroom. Determination of the actual dust content of the air by analytic methods furnishes the only key to the problem.

---

[4] Winslow, C.-E. A.; Greenburg, L., and Angermeyer, H. C.: Standards for Measuring the Efficiency of Exhaust Systems in Polishing Shops, Pub. Health Rep. 34: 427 (March 7) 1919.

[5] Winslow, C.-E. A.; Greenburg, L., and Reeves, E. H.: The Efficiency of Certain Devices Used for the Protection of Sand Blasters Against the Dust Hazard, Pub. Health Rep. 35: 518 (March 5) 1920.

What we need is, first of all, the discovery of the factories in which a dust hazard may apparently exist; secondly, a study of conditions by competent analysts for the determination of the actual dust content of the air; thirdly, the development of protective measures along one or the other of the lines laid down above.

For the determination of dust content and for counsel in regard to remedial measures we must call on city and state health departments, on state labor departments and on the United States Public Health Service (which has played a leading part in the study of industrial dusts during the last twenty years). It is to the medical profession, however, that we must primarily look for the discovery of the danger spots that require special attention.

To the industrial physician, if he be a real industrial physician and not merely a doctor who practices medicine in a factory, the problem of silicosis is one of primary importance. The private practitioner may, however, render invaluable service in the elimination of this hazard by careful inquiry as to the previous occupations of patients who come to him for the treatment of respiratory disease. In many states, silicosis is a reportable disease, in some, it comes under the provisions of the Compensation Act. In all, there will be opportunity for cooperation with public authorities and employers of labor in the elimination of dust hazards, if the physician is alert in the tracing of a relationship between occupation and respiratory disease.

That industrial tuberculosis is by no means a minor hazard, affecting only a few isolated groups of workmen, is clearly seen by reference to the reports of the registrar-general of England and Wales, which give data far more complete than any which are available in the United States. The pertinent data from the last report (for 1910-1912) are cited in Table 4.

These figures are not in terms of deaths per hundred thousand but in the form of arbitrary comparative mortality figures. I have therefore included at the top of the table the comparable figure for all occupied males and the lowest figure given, that for clergymen; and also the figure for coal miners to compare with that for tin miners below. It will be noted that the rate for tin miners (with silica dust) is nearly ten times that for coal miners (without silica dust). I have included in this table every occupation given by the registrar-general with a comparative mortality figure for tuberculosis over 250; and it will be noted that, of the ten occupations that exhibit such excessive rates, six are occupations exposed to silica dust, including all of the three in excess of 420.

CONCLUSION

There has been much argument, of late, in regard to the relative weight of various factors in the determination of the prevalence of tuberculosis. I am familiar with no single factor in the entire list, whether hereditary or environmental, which shows so clear and so striking a statistical relation to the tuberculosis death rate as exposure to the inhalation of silicious dusts. Surely, we have here a problem that deserves far more attention from the medical profession than it has received in the past.

ABSTRACT OF DISCUSSION

Dr. L. R. Thompson, Washington, D. C.: The importance of the subject of factory ventilation and industrial tuberculosis is too little recognized by the medical profession, perhaps largely for several reasons: First, in our early medical training occupation and its relation to disease is completely disregarded in the teaching of medicine. Second, in our diagnosis of disease we seldom, if ever, inquire into the occupation of the patient or consider it as bearing on the symptoms which he presents. Third, although we have accepted the making out of a death certificate as a matter of daily routine, and have educated ourselves in the correct method of reporting causes of death, we still give no thought in entering the occupation, ignoring entirely the immense practical information that could be obtained from a fairly correct correlation between occupation and disease. Dr. Winslow has brought out very clearly the relationship between dust, like coal and cement, and an excessive incidence of acute respiratory diseases among workers exposed to those dusts. If we compare mortality data from an occupational standpoint with industrial sickness data, we are immediately struck by their dissimilarity. While tuberculosis is by far the most important cause of death, other respiratory diseases, such as colds, are far more important in causing absence from work on account of sickness, and after all, the causes that keep a man away from work during his industrial life are of vital economic importance to him. Dust is one of the most important factors in contributing to the higher rate of sickness in the respiratory group of diseases. In an unpublished study of ours of sickness and the number of industrial accidents that disabled for two working days or longer, we found that in a cement plant the annual number of cases per thousand males due to respiratory diseases was 586, as compared to 163 in a rubber plant. In fact, the absence on account of sickness from respiratory diseases in this plant was the highest we have yet found in any industry studied. Dust is the outstanding health hazard, and I agree with Dr. Winslow on the vital importance of factory ventilation in reducing sickness from these conditions.

Dr. Frederick L. Hoffman, Newark, N. J.: Some of those present may not be aware of the fact that a bill in the state of New York, proposing to make silicosis a compensable disease, was recently vetoed by Governor Smith. It was a measure of great intrinsic merit, attempting to deal effectively with a problem that is at present neglected and unsolved. There was no opposition to the general principle, but organized labor opposed the restrictions included in the bill, which would have been a safeguard against serious possible abuses. The substitute bill proposed was too general in its nature. The bill in question was, therefore, a compromise and deserved to pass. In the discussion on this bill before the legislative committee, it was clearly shown that the medical profession has been derelict in giving proper attention to silicosis, as well as to silicosis and tuberculosis in their relation to each other. Silicosis is a distinct type of lung disease and is not infectious. I found in my investigations in Vermont that the wives of workers in stone dust who had died from silicosis had not contracted the disease. In the nonsilicotic lime stone quarries of Indiana a similar investigation revealed a considerable amount of true tuberculosis, among the men as well as among the wives. Until it is clearly recognized that silicosis in its beginning is not tuberculosis, however much the symptoms may resemble tuberculosis, little progress will be made in dealing effectively with this insidious affection. I voice very strongly the concluding sentence of Dr. Winslow's paper that the profession should take a more serious and painstaking interest in this problem. It is by far the most important dust problem that confronts the medical profession today. Until it is made a compensable disease, we shall not make the progress that we are in need of. Enough evidence on the subject is in print, but it is, broadly speaking, entirely neglected. We are in need of the whole-hearted cooperation of the medical profession to gain the public support for a silicosis law that will prove satisfactory to all concerned. By his veto, Governor Smith deprived hundreds of deserving workmen of their just dues. No new legislation can possibly hope to meet all the objections that can be raised against it. The silicosis bill of 1925 was a meritorious statute and should have been enacted into law.

Dr. R. D. Vreeland, Newark, N. J.: There are many difficult problems and phases in the study of ventilation, especially in a store with its many varied departments, which practically embrace all types and conditions that are usually found. The first principle to be remembered is that air currents act on walls, ceilings, etc. Where there is no exhaust (suction) ventilation, the first problem is to see that the inlet is on the windward side and then so arrange the electric fans pointing at angles upward as to move the hot air blanket toward the outlet. This at the same time does away with drafts on the employees, which are especially harmful in winter time. All types of windows and means of inlet and outlet air, speaking purely from the aeration point, have their objectionable features. We have found the best type so far to be the "Browne" window, with a separate whole upper sash hinged at the bottom to open inward to such varying degrees as necessary; to these we attach side curtains to prevent the side draft which, if not prevented, shoots out and strikes all in the vicinity, with the usual result that the windows are closed by those near them when most needed by those away from them. The moving of the hot air blanket also means the lowering of the room temperature, and it has been proved that a difference of a few degrees in temperature makes a difference in efficiency. This is why so many different kinds of ventilation are unsatisfactory, as they simply shoot the air toward the ceiling and it rebounds on those below. When only a few degrees difference in temperature means a saving in efficiency of from 5 to 10 per cent., what does the added saving mean not only to the employer but to the employee (in loss of time, wages, and lowered vitality) when conditions are correct and the machine we call our body is running smoothly and efficiently? As an example, we reduced the percentage of workers out because of illness in one department alone nearly 15 per cent. by these means.

Dr. P. H. Hourigan, Buffalo: Physicians in the industries find silicosis in various stages, and I believe it is much more common than we ordinarily consider it. The varieties of occupations which, when closely analyzed, show marked exposure to dust, would lead one to readily find conditions to support this statement. We had, in our own industry, a beautiful case of anthracosis. The man had been working for twenty years, taking care of the ashes coming from the boiler shop. Just outside the door where he dumped the ashes was a large pile of fine, dusty coal, probably thousands of tons. This man happened to die suddenly where he might have been exposed to hydrocyanic acid gas. In the postmortem examination, necessitated by the hydrocyanic gas exposure, we found a well advanced case of anthracosis. The apex of the right lung showed some scar tissue which might have been an arrested case of tuberculosis. During the twenty years that the man had worked for us, he had made no complaint of this condition and had lost only about 25 per cent. of the time usually lost by workingmen because of sickness.

Dr. Earl F. Smith, Pittsburgh: I have not heard mentioned the advantage of the air dilution problem. In the factory with which I am connected they have all the mechanical apparatus that has been suggested for the removal of dust, but there are many mechanical objections to all these forms of suction apparatus. They may look all right and be perfectly installed apparently, and yet there are so many little things that can go wrong that they do not work in a practical manner, as proved by a dust count; but we have at all times a natural circulation of air from the outside, and if we try to depend entirely on the mechanical suction apparatus we withdraw the air from the machine and are apt to be only stirring up the air in the room, keeping it in circulation. The important point is to keep windows open so as to get a fresh air supply and get dilution and keep the dust down.

Dr. C.-E. A. Winslow, New Haven, Conn.: I think this discussion throws real light on the whole question of industrial tuberculosis and particularly on the underlying pathologic origin of the difference in the effects of different kinds of dust. It seems to me the fact that the acute respiratory diseases, so common among cement workers, are not so severe among granite cutters is in favor of the view of Dr. Krause's that one type of dust produces acute inflammatory reaction and is then eliminated, while the silica dust remains in the lung tissues, causing less inflammation and more fibrosis. The point that Dr. Hoffman made that silicosis is not a communicable disease is important. In Connecticut, communicable diseases are specifically excluded from compensation and several cases of so-called industrial tuberculosis have failed to receive compensation on the very proper contention that tuberculosis is classified as a communicable disease. Silicosis, however, is not a communicable disease, and if the distinction between silicosis and tuberculosis had been kept in mind the result might have been different. There are naturally honest differences of opinion as to procedure in these matters. I feel personally that Governor Smith was entirely right in vetoing that New York bill of which Dr. Hoffman spoke. In fact, I wrote him a strong letter urging him to do so. It seemed to me that this bill was so framed and hedged about with so many qualifications no one could get compensation under it, and its passage would merely have stood in the way of the future enactment of a bill under which compensation could really be secured.

Clinical Notes, Suggestions, and New Instruments

CHOREA INSANIENS: REPORT OF A CASE WITH RECOVERY

Orlando H. Petty, M.D., and Howard W. Schaffer, M.D.,
Philadelphia

Osler[1] writes of having seen two cases of chorea insaniens and reports twelve other cases from the literature. All these were fatal and, at necropsy, showed vegetations of the mitral valves. While the mortality of this type of chorea is very high, Osler calls attention to the fact that only the more severe cases, usually ending in death, are reported.

The case reported here is of a white girl, aged 12 years. Her mother had chorea at 13 years of age. An aunt on her mother's side died of chorea, at the age of 14, and an aunt and cousin of her mother's also suffered from chorea in youth.

The girl had had measles, chickenpox, scarlet fever, influenza and, at the age of 7, a glandular fever of short duration. She had had several attacks of tonsillitis. During the last attack, Dec. 14, 1924, she was in bed three days. She was then up and active for about ten days, when she developed painful swollen joints in the right great toe and in the right knee. One week after the beginning of the joint trouble, she developed twitching; this continued to get worse, and by the fourth week was so severe that she could not talk. At no time had she been frightened or subjected to severe nervous strain. During this illness, from December 14 to the time of her admission to the hospital, Feb. 6, 1925, she was treated by a physician who also practices chiropractic.

On admission to the hospital she was delirious, poorly nourished, continuously tossing from one side of bed to other, rolling from face to back, and arching her body in opisthotonos, with continuous choreiform contractions of the muscles of the body, face and extremities. She could not talk, but almost constantly would emit peculiar cries with her choreiform movements. The skin was dry, the lips were covered with sordes, and the tongue and buccal mucosa were as dry as parchment. The pupils were normal, and there was no conjunctivitis. The temperature was 106 F.; the pulse, 140. The lungs and abdomen were normal. The heart was normal except for an increase in rate. The throat was not congested; the tonsils were enlarged, but not acutely inflamed. There were no eruptions on the skin and no subcutaneous nodules. The joints were apparently normal, but the mental and physical condition of the patient made impossible the determination of tenderness or of limitation of motion. She was unable to swallow and, for three weeks, was fed by a stomach tube passed through the nose. To control the irritated nervous system sufficiently to induce a few hours' sleep required 60 grains (4 gm.) of barbital and 8½ grains (0.6 gm.) of morphin during the first four days. The four days following required 7½ grains (0.5 gm.) of pantopon. Phenobarbital (luminal) and bromids were tried and seemed to have little, if any, effect. Barbital was continued in small doses for several weeks, as this seemed to be the most effective drug, after the delirium had cleared up, in controlling the choreiform movements. During convalescence, she developed many large subcutaneous abscesses on the scalp, back and extremities, especially on the hands and fingers. Her temperature gradually subsided, and about the thirtieth day of her stay in the hospital, her condition became normal. During the febrile period, the urine showed a faint trace of albumin; no casts or red blood cells were found at any time. A blood examination revealed a moderate anemia, with a slight polymorphonuclear leukocytosis, but no increase in eosinophils. She gained rapidly in strength and weight, after the fever had subsided, and was discharged from the hospital forty days after admission. At no time did she present any evidence of valvular disease. Six months after her illness, she was leading the life of a normal child of her age. Her heart was of normal size, and its sounds and rate were normal. She had no tendency to be nervous or to stammer, and showed no signs of chorea.

---

[1] Osler: On Chorea and Choreiform Affections, 1894.

The points of especial interest in this case are: (1) the large amount of hypnotics required to produce a physiologic effect; (2) the feeding of food and large amounts of liquids by a stomach tube for three weeks, and (3) the complete recovery of the patient, in a short period of time, from a disease in which the prognosis was so grave.

1529 Pine Street.

A TRANSFUSION CANNULA WITH STOPPER

MULTIPLE SYRINGE-CANNULA METHOD WITHOUT AN ASSISTANT

Henry F. Stoll, M.D., Hartford, Conn.

The method of transfusion here described requires only two Unger transfusion needles provided with stoppers, and half a dozen record syringes. A fine chain attached to the guard and fastened to the skin by adhesive plaster insures the cannula remaining within the vein. The patient receives warm blood that has come in contact with a minimum amount of foreign material. The only assistant needed is some one to wash the syringes.

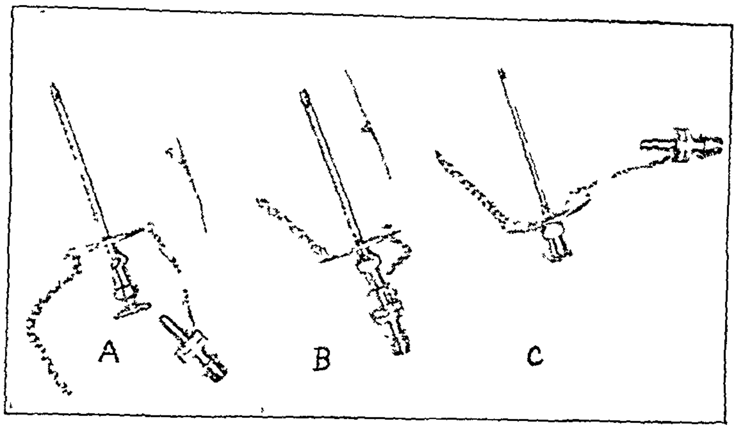
The original feature of this method is the employment of a stopper that occludes the cannula when it is not connected with a syringe, and the "guy chain" that prevents the cannula from slipping out of the vein. The stopper is attached to the guard by a short, fine chain in such a way that the "cannula end" is upright, thus making its introduction easy.

Donor and patient are placed side by side about 2 feet apart, the adjacent arms resting on a board about 15 inches (37 cm.) wide that extends from one table to the other. A small table for syringes, gauze, etc., is placed between patient and donor, and behind this a larger table on which are three basins, two for sterile water and one for saline solution for washing the syringes.

The cannulas are introduced in the usual manner in the donor's and patient's veins and occluded by the stoppers, the guy chains made taut and fastened by adhesive plaster to the skin, and the transfusion proceeds as follows:

The stopper is removed from the donor's cannula and five 20 c.c. record syringes, each containing from 2 to 3 c.c. of physiologic sodium chlorid solution, are rapidly filled with blood and placed on the table between donor and patient. The stopper is then inserted into the donor's cannula, the one occluding the recipient's cannula is withdrawn, and the contents of the syringes (100 c.c.) are quickly injected. The syringes are washed as emptied, and again refilled. This amount of saline solution prevents clotting for at least two minutes—considerably longer than is required to transfer 100 c.c. of blood.

Post-transfusion reactions in the main appear to be due to three factors acting singly or in combination: (1) improperly matched blood; (2) the use of complicated, and consequently improperly cleaned, apparatus, or (3) changes in the blood transfused incident to chilling, traumatization of the cells from manipulation (stirring and filtering), and contact with foreign material (especially certain brands of rubber tubing that have toxic properties when new).



A, needle and cannula ready for introduction into vein; *B*, cannula within the vein, occluded with stopper; the guy chain held by the adhesive plaster insures the cannula remaining in the vein; *C*, stopper removed preparatory to attaching syringe.

Transfusion by the method here described eliminates the factors mentioned under 2 and 3, and, if the first syringeful is injected slowly, early symptoms of blood incompatibility are recognized, and the transfusion can be stopped before any harm is done.

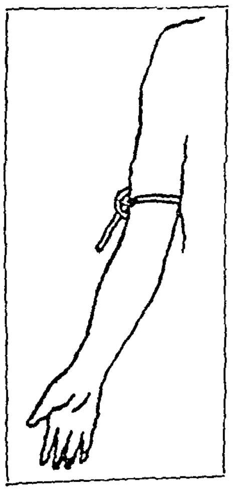
Twenty-three transfusions, averaging more than 570 c.c. each, have been given by this method with two chills, which occurred in the same patient, who was in the terminal stage of primary anemia and who had had several previous transfusions and was probably in a refractory state.

179 Allyn Street.

RUNNING BOW LINE TOURNIQUET *

Filip C. Forsbeck, M.D., Madison, Wis.

The ordinary piece of rubber tubing used as a tourniquet in intravenous medication and drawing of blood samples has certain disadvantages. As it is commonly used, the binding loop forms an undesirable bulging against the skin, it is released with a jerk that is apt to cause the needle to leave the vein, and it takes some care to keep the free ends from the sterile field.



Running bow line tourniquet.

The running bow line tourniquet consists of the usual rubber tubing with a 2 or 3 inch loop at one end. This can be made with a heavy rubber band or by sewing.

The open end is slipped through the loop so as to form a running bow line just above the elbow. Traction is exerted on both ends, and the loop is pushed down snugly against the arm and released. It will hold firmly. Steady pressure against the loop with the thumb will release the tube with a smooth action and the tube will remain loosely in position until it is convenient for the operator to remove it.

---

* From the State of Wisconsin General Hospital, University of Wisconsin.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

THEOCALCIN.—A double salt or mixture of calcium theobromine ($[C_7H_7O_2N_4]_2Ca$) and calcium salicylate ($[C_7H_5O_3]_2Ca$). It contains not less than 44 per cent. of theobromine.

Actions and Uses.—Theocalcin acts like theobromine. It is claimed to be less likely to produce gastric irritation than the official theobromine sodio-salicylate.

Dosage.—Average dose, from 0.5 to 1 Gm. (7 to 15 grains) three times a day.

Manufactured by E. Bilhuber, Inc., New York. U. S. patent 1,547,698 (July 28, 1925; expires 1942). U. S. trademark No. 194,898.

Theocalcin Tablets 7½ Grains.

Theocalcin is a white, amorphous powder, having a saline taste. It is partly soluble in water.

An aqueous solution of theocalcin is alkaline to phenolphthalein. An aqueous solution of theocalcin (1:100), slightly acidulated with acetic acid, becomes violet on the addition of ferric chloride solution. Transfer about 0.05 Gm. of theocalcin to a test tube, add 3 Cc. of diluted acetic acid and heat to boiling; cool the contents of the test tube, filter and to the filtrate add 0.5 Cc. of ammonium oxalate solution: a precipitate forms, which dissolves on addition of 1 Cc. of diluted hydrochloric acid. To about 0.05 Gm. of the precipitate obtained in the assay for theobromine, add 1 Cc. of hydrochloric acid and about 0.1 Gm. of potassium chlorate and evaporate to dryness on a water bath: a reddish yellow residue remains, which becomes purple when moistened with a drop of ammonia water.

Dried to constant weight at 110 C., theocalcin loses not more than 5 per cent. (*water*). Treat 0.1 Gm. theocalcin with 2 Cc. of sulphuric acid: no effervescence occurs (*carbonate*) nor is more than a slight color produced (*readily carbonizable substances*). Mix 1 Gm. of theocalcin with 10 Cc. of distilled water, add a few cubic centimeters of sodium hydroxide solution (filter if necessary) and shake the mixture with 10 Cc. of chloroform; separate the chloroform layer, evaporate it to dryness on a water bath and dry to constant weight at 80 C : the weight of the residue so obtained does not exceed 0.005 Gm. (*caffeine*).

Suspend about 2 Gm. of theocalcin, accurately weighed, in 75 Cc. of water and add diluted hydrochloric acid until the solution is acid to phenolphthalein. Warm gently, then add sodium carbonate solution until the calcium is completely precipitated, avoiding a large excess. Filter off the calcium carbonate; evaporate the combined filtrate and washings on a steam bath to 20 Cc. Add diluted hydrochloric acid, drop by drop, until just acid (to phenolphthalein), then dilute ammonia water until slightly alkaline. Allow to stand at from 20 to 25 C. for three hours, stirring occasionally. Transfer the precipitate of theobromine to a tared gooch crucible. Wash the precipitate and filter with four successive portions of 5 Cc. each of ice cold distilled water and dry to constant weight at 100 C. To the weight of the precipitate thus obtained, add 0.14 Gm. The total weight corresponds to not less than 44 per cent. of the weight of theocalcin taken. About 0 2 Gm. of the precipitate obtained in the assay for theobromine volatilizes when slowly heated, leaving only a negligible residue.

MERCURIC OXYCYANIDE (See New and Nonofficial Remedies, 1925, p. 228).

The following dosage forms have been accepted:

Sterile Ampules of Mercury Oxycyanide, 0 008 Gm. Each contains 5 Cc of solution representing 0.008 Gm. (⅛ grain) of mercuric oxycyanide N. N. R.

Prepared by the Swan-Myers Co., Indianapolis.

Sterile Ampules of Mercury Oxycyanide 0 01 Gm.: Each contains 5 Cc. of solution, representing 0 01 Gm. (⅙ grain) of mercuric oxycyanide-N. N. R.

Prepared by the Swan-Myers Co , Indianapolis.

Sterile Ampules Mercury Oxycyanide, 0 016 Gm.. Each contains 3 Cc. of solution, representing 0.016 Gm. (¼ grain) of mercuric oxycyanide-N N. R.

Prepared by the Swan-Myers Co., Indianapolis.

TETRAIODOPHTHALEIN SODIUM.—Tetraiodophthaleinis Sodium.—Tetraiodophenolphthalein Sodium.—$NaOOC.C_6H_4C:C_6H_2I_2O.C_6H_2I_2ONa$. The sodium salt of a dibasic dye, tetraiodophenolphthalein. Tetraiodophthalein sodium contains not less than 53 per cent. of iodine.

Actions and Uses.—Tetraiodophthalein sodium is used for the roentgenologic examination of the gallbladder. Following the intravenous injection or, if decomposition is avoided, the oral administration, the substance appears in the normal gallbladder in sufficient concentration to cast a shadow to the roentgen ray. After injection, a few of the patients may have unpleasant sensations, such as dizziness, nausea, various body pains, and fall in blood pressure. The transitory fall in blood pressure may be relieved by the administration of from 0 5 to 1 Cc. of epinephrine hydrochloride solution (1:1,000) intramuscularly. The use of tetraiodophthalein sodium is in the experimental stage, and workers are cautioned as to the selection of types of cases in which it is indicated and its possible toxicity in large doses. More than 1,000 patients, however, are reported to have been examined by this method with no deaths.

Dosage.—To visualize the gallbladder in a patient weighing between 115 and 160 pounds (52 and 72.6 kg.), 3 Gm. of tetraiodophthalein sodium is dissolved in 24 Cc., or 3.5 Gm. of tetraiodophthalein sodium solution is dissolved in 28 Cc. of freshly distilled water; the solution is then sterilized by heating the container in boiling water for twenty minutes. For patients weighing less than 115 pounds (52 kg.), the amount of salt is to be reduced. The solution is injected intravenously in two doses, one-half hour apart in the morning before breakfast. Care must be taken not to allow extravasation on account of tissue necrosis. Breakfast is omitted. At noon a glass of milk is permitted, and the evening meal is allowed as usual. Water by mouth it allowed at all times.

Tetraiodophthalein sodium may be administered orally in the form of capsules or pills coated with phenyl salicylate. The average dose is 5 Gm., administered in five capsules or pills of 1 Gm. each during the evening meal. Breakfast is omitted. Since the capsules may not be dissolved, any evidence of abnormality found by the oral method should be checked up by the intravenous method.

Tetraiodophthalein sodium is a dark blue, somewhat hygroscopic, crystalline powder, odorless. It is soluble in water and in alcohol. The aqueous solution (1: 300) has a reaction of p_H 7 to 9.

Dissolve 1 Gm. of tetraiodophthalein sodium in 10 Cc. of water: a clear solution results. Add diluted hydrochloric acid, drop by drop, to 1 Cc. of a 10 per cent. aqueous solution until the liquid is acid in reaction: a cream colored precipitate is formed. Add sodium hydroxide solution to this mixture in large excess: a purple color first forms and then disappears. Intimately mix 0.1 Gm. of the salt with 1 Gm. of anhydrous sodium carbonate and heat to fusion; cool the fusion and dissolve it in diluted hydrochloric acid and filter; add a few drops of hydrogen peroxide solution and agitate the mixture with a few cubic centimeters of chloroform: the chloroform layer is violet (*iodine*).

Weigh accurately about 0 25 Gm. of tetraiodophthalein sodium in a stoppered weighing bottle. Transfer it to a 300 Cc. Kjehldahl flask, add 11 Cc. of absolute alcohol and connect the flask with a reflux Liebig condenser cooled with tap water. Warm slightly and begin the introduction of sodium metal. The sodium metal is prepared by rolling 2.3 Gm. of the metal, free from surface film, between paper into small (from ten to fifteen pieces) rods. This should be kept in a tightly stoppered weighing bottle during the operation. The sodium metal is added through the top of the condenser, one piece at a time. After several pieces have been added, there may be two or three undissolved pieces in the flask at one time. The addition of the sodium should occupy between thirty and forty minutes. Gentle heating may be required to dissolve the last pieces of sodium (*caution*). After the sodium has been all added, reflux the mixture for one hour and then allow to cool. Add water, 1 Cc. at a time, through the top of the condenser, until the sodium is taken up. Then disconnect the flask and add more water until the precipitate is dissolved. Transfer the liquid to a 500 Cc. Erlenmeyer flask and dilute to 200 Cc.; acidify with 20 per cent. nitric acid solution and add 25 Cc. tenth-normal silver nitrate and 2 Cc. ferric nitrate indicator. Titrate the unconsumed silver nitrate with tenth-normal ammonium thiocyanate: the amount of iodine found is not less than 53 per cent. (If the weight of salt taken for the assay appreciably exceeds 0.25 Gm., a proportional change in the amount of absolute alcohol and sodium metal must be made.)

Iodeikon.—A brand of tetraiodophthalein sodium-N. N. R.

Manufactured by the Mallinckrodt Chemical Works, St. Louis. No U S. patent or trademark.

Iodeikon, 3.5 Gm. Ampules.

Tetraiodophthalein Sodium-"National."—A brand of tetraiodophthalein sodium-N. N. R.

Manufactured by the National Aniline & Chemical Co, New York. No U. S. patent or trademark.

Tetraiodophthalein Sodium-"National" Vials 3.5 Gm.

VI-MAL-DEX (ORANGE). — A mixture containing, approximately, maltose, 28 per cent.; dextrose, 10 per cent.; dextrin, 48 per cent.; orange juice sugars, 9 per cent.; citric acid, 1 per cent.; ash, 1 per cent.; moisture, 3 per cent. One hundred Gm. contains the equivalent of 93.5 Cc. (1 ounce is the equivalent of 0.85 fluidounce) of fresh orange juice.

Actions and Uses.—Vi-Mal-Dex (Orange) is proposed as a carbohydrate food for use in the feeding of infants. In addition to the carbohydrates, dextrose, maltose and dextrin, it presents the antiscorbutic properties of orange juice.

The nutritive value of 100 Gm. corresponds, approximately, to 390 calories.

Dosage.—To prepare for use, vi-mal-dex (orange) is mixed with water or milk. When 1 ounce vi-mal-dex (orange) is added to 1 quart of a milk dilution (milk, 20 fluidounces; water, 12 fluidounces), the hydrogen-ion concentration is increased from p_H 5.56 to 6.25.

Manufactured by the Merrell-Soule Co., Syracuse, N. Y. No U. S. patent. U. S. trademark applied for.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - - Chicago, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - - Five dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, SEPTEMBER 26, 1925

THE ANTIRACHITIC VITAMIN

The widespread occurrence of rickets in this country, even in times of peace and under conditions of national prosperity that ought to preclude poverty as the predominant agency in the genesis of the disease, should direct attention to the evident lack of adequate protective or antirachitic factors in the environment and regimen of those affected. Rickets is not an intractable disorder; it is preventable or curable, as the case may be, by sunshine and its equivalents, and likewise by suitable dietary ingredients. The active agent functions by promoting normal calcium anabolism, particularly when the supply of the element is not very abundant; consequently, it may relieve rickets, promote growth, or simply prevent excessive loss of lime from the body. As a recent writer has expressed it, the specific capacity in which the antirachitic factor functions depends on the condition of the individual with respect both to age and to nutrition, and on the composition of the diet furnished.

Sunshine, with its ultraviolet rays, is not as universally available in the conditions of present-day living in temperate climates as might be expected. The atmosphere, as well as our artificial shelters with their windows of glass, tends to exclude the potent rays from impingement on the person that needs their benefits.[1] Artificial sunshine is not commonly available; hence the food sources of antirachitic vitamin attain preeminent importance in relation to national welfare. The inquisitive investigator of the present generation is not content, however, with the discovery that one or another of the familiar food products is antirachitically potent. His persistent search is ceaselessly directed toward the chemical individual or unit that may be identified as vitamin D. Sufficient progress has been made to permit some of the significant steps to be recorded.

For some time it has been known that the antirachitic factor is stable toward saponification. This at once takes it out of the class of true fats, with which it is so commonly associated in nature. The sterols, among which cholesterol is most familiar to physicians, are included among the nonsaponifiable components of fats; but there is now an abundance of evidence that the antirachitic factor is not cholesterol or the phytosterols of plants, though they can readily be made potent by irradiation with ultraviolet rays, whereby vitamin D can be artificially created. Nelson and Steenbock[2] of the University of Wisconsin have recently confirmed the statement that the compounds responsible for the antiophthalmic and antirachitic properties of cod liver oil are not precipitable by the cholesterol precipitant digitonin. This narrows the search for the effective vitamin, so that we may confidently expect a more definite identification of a highly essential food factor in the near future. It is a real step in advance to have excluded some of the common companions of the potent substance as it occurs in natural products.

CYANOSIS

Strictly speaking, cyanosis is a symptom in which a bluish hue is imparted to some part of the cutaneous surface of the body. There was a time when the inconsistent expression "blue jaundice" was applied to the same manifestation. To physicians the word "cyanosis" probably suggests a disorder characterized by malformation of the heart or some other pathologic condition leading to imperfect arterialization of the blood; hence the latter retains a "venous" hue. Such cyanosis usually is attributed to an increase in the oxygen unsaturation of the blood to a certain value. Sometimes the bluish color characteristic of a cyanotic condition is confined to some small part of the body. This may happen when there is a diminished flow of blood to it, so that with the continued demands of the tissues for oxygen a consequent increase in the amount of reduced hemoglobin in the blood, the factor responsible for the bluish color, ensues. It has been asserted[3] that certain features, although themselves incapable of producing cyanosis, may influence the degree of oxygen unsaturation necessary to impart color to the skin, and modify the intensity of the blue produced. Such a factor is the number, width and length of blood-filled capillaries per unit of skin area.

Goldschmidt and Light[4] of the University of Pennsylvania have recently demonstrated how the color of the skin may vary, and actually assume a truly cyanotic hue, without any change in the oxygen saturation of the hemoglobin in the vessels of the part involved. This happens frequently when there is an engorgement of the latter whose circulating fluid, unduly abundant in volume, imparts the bluish color to the superimposed skin. It can be demonstrated when the arm is allowed to hang down and is kept stationary. In this way there results a dilatation of the capillaries and subpapillary venules because of the increased hydrostatic pressure imposed on the blood in the veins. The increase tending to inhibit the venous outflow of blood is balanced by a like but opposite pressure on the arterial limb of the vascular bed, thus insuring a maintenance of volume flow of blood through the hand and arm.

---

[1] Hess, A. F.: The Ultraviolet Rays of the Sun, J. A. M. A. **84**: 1033 (April 4) 1925.

[2] Nelson, E. M., and Steenbock, H.: Fat-Soluble Vitamins, XXIV, The Non-Precipitability of the Antiophthalmic and Antirachitic Properties from Cod Liver Oil by Digitonin, J. Biol. Chem. **64**: 299 (June) 1925.

[3] Lundsgaard, C., and Van Slyke, D. D.: Cyanosis, Baltimore, 1923.

[4] Goldschmidt, L., and Light, A. B.: A Cyanosis Unrelated to Oxygen Unsaturation, Produced by Increased Peripheral Venous Pressure, Am. J. Physiol. **73**: 173 (June) 1925.

These studies, in which the actual composition of the blood with respect to the respiratory gases was directly determined, leave little doubt that the blueness of the skin, which is often a topic of personal comment in regard to patients, is by no means solely or always due to stasis, with a consequent depletion of oxygen in the impeded blood. The vessels whose blood transmits color to the skin, when filled in greater number and increased in width and possibly in length, may contain blood of an oxygen unsaturation no greater or even less than that flowing in constricted vessels; yet the skin may assume a bluish hue. The point to be emphasized is that not only the state of dilatation or contraction of the capillaries and the character of the blood in them, but also the condition of the small veins or venules, and possibly of the subpapillary plexus of arterioles also, determine the varying color of the skin. The tint may vary, depending on whether the capillary or the venule dilatation predominates. Pallor, pinkness or blueness of the skin may thus have a variety of underlying causes. In the absence of stasis, all cyanosis of local or general origin must be accompanied by a degree of either capillary or venule dilatation, or both, in order to be visible through the skin. Pink coloration of the skin, such as occurs with mild local heat, is reflected primarily from the capillaries. In the polycythemia associated with congenital heart disease or Vaquez' disease, the venous blood may have a normal oxygen unsaturation and contain more oxygen than normal arterial blood. Under these conditions an increase in the number and width of the skin capillaries has been observed. According to published observations,[5] the skin usually is red, but it may become bluish, particularly in a warm room. The color depends, in this case also, on the condition of the vessels rather than on the quality of the blood they contain. These findings should not let us overlook the fact, however, that the development of a blue color of the skin can likewise take place under conditions of vasoconstriction and decreased blood flow when the oxidative processes in the tissues are continued at the usual rate so that the blood becomes comparatively depleted in oxygen and assumes highly venous characteristics.

SUGARS AND SWEETNESS

It has recently been remarked that the rare sugars of the present day may be among the common sugars of the future. Such a conjecture is not entirely devoid of justifying evidence. Sucrose, as cane sugar or beet sugar, has long been available in crystalline form in a high degree of purity as an inexpensive article of commerce. At the current retail price, one cent will buy considerably more than three hundred calories of sucrose, representing the nearest approach to chemical purity of any common item in the diet of man. Only a few years ago, the much berated "glucose" was commercially available only in the form of comparatively crude syrups, but today there are indications that refined products of high purity will soon compete with the long favored sucrose under conditions that do not justify the somewhat derisive designation of "corn syrup." Lactose, or milk sugar, is marketed in large quantities. Levulose, also known as fructose, or fruit sugar, once ranked among the rarer sugars, has been produced crystalline in quantity for a great number of years; and the possibility of manufacturing levulose syrup from the Jerusalem artichoke, which contains from 12 to 14 per cent. of the carbohydrate inulin, has already been suggested.[1] The production of invert sugar syrups, containing glucose and levulose, from sucrose already is an industry of considerable proportions. The changing dietary customs in regard to sugar products is shown in the lessening prominence of honey and molasses in comparison with their rôle in the culinary arts a century ago.

In view of these circumstances it seems highly desirable to learn the special properties with which the possible saccharine competitors for human favor are endowed, so that they can be compared discriminately when occasion arises. Change is not always dictated by choice; it may be enforced by unanticipated necessity, as those who recall the sugar shortage during the World War can testify. The most prominent feature of the sugars as a class is their sweetness; yet, strangely enough, accurate information as to their relative sweetness has largely been lacking or the data have been variable. Recent studies[2] at the University of Minnesota are probably the most satisfactory contribution yet offered on the subject. If the sweetness of sucrose is rated as 100, levulose deserves a value of 173, glucose 74, maltose 32, galactose 32, and lactose (milk sugar) 16. The low sweetening power of the latter has long been known, and has made it possible to use this easily dissolved carbohydrate in large quantities where high calory intake was desired but ordinary sugar would become distasteful because of its greater sweetness. The unique sweetness of levulose has not been fully appreciated heretofore. It accounts for the relatively high sweetness of invert sugar produced by inversion of sucrose, thereby increasing its sweet flavor about 30 per cent. It will also come as a surprise to many that "glucose," the hydrolysis product of starch, approaches cane sugar so closely in sweetening power.

---

[5] Fitz, Reginald: Oxford Medicine **2**: 767, 1920.

[1] Willaman, J. J.: Science **52**: 351, 1921.

[2] Biester, A.; Wood, M. W., and Wahlin, C. S.: Carbohydrate Studies, I, The Relative Sweetness of Pure Sugars, Am. J. Physiol. **73**: 387 (July) 1925. Willaman, J. J.; Wahlin, C. S., and Biester, A.: II, The Relative Sweetness of Invert Sugar, ibid., p. 397.

The time has come for students of nutrition to emphasize the fact that the place of sugar in the dietary has changed from that of a flavoring adjuvant to a position of not negligible importance as a food fuel. A century ago the per capita consumption of sugar presumably did not exceed ten or twelve pounds yearly. At present the annual use averages a hundred pounds more. This gradual introduction of approximately two pounds, or eight thousand calories a week, into the regimen of the average person can have occurred only through displacement of some equivalent source of energy. Pure sugar, devoid of inorganic salts or vitamins, has thus become a diluent, so to speak, of the national diet. This does not mean that sugar is not a wholesome food; on the contrary, it is easily digested as a rule and quickly mobilized for physiologic uses. Without sugar—in suitable form—in the blood, disaster quickly arises. But the purity of present-day sweet sugar used as a food rather than as a food adjuvant inevitably leads to a decreased intake of the useful "contaminants" that are introduced into the diet along with the cruder sources of carbohydrate or fat that is being displaced. Whether a real menace to well being is involved therein remains to be seen. A change in dietary customs and food habits has, at least, brought new problems.

THYROID PREPARATIONS

Therapy with thyroid preparations has long had a well established place in medicine. The products have specific effects unattainable by the use of any other pharmacologic agents. The effects of thyroid preparations are clearly defined and, in certain instances at least, measurable in character. In view of these facts it is indeed surprising that, as Hunt[1] of the Harvard Medical School has recently pointed out, dosage with thyroid is largely empiric. The labels on the commercial preparations are as a rule not very elucidating. Dosage expressed in terms of grains of fresh glands is, to quote a recent writer, about as rational as reference of the dosage of morphin to the fresh juice of the poppy. Thyroxin, the chemically definite compound isolated by Kendall, presumably represents the essentially active group in the thyroid gland. Since, however, there does not seem to be a constant relation between the amount of thyroxin that can be isolated from a gland and the physiologic activity of the latter, standardization on the basis of obtainable thyroxin does not seem to afford a suitable basis of procedure.

It is a familiar fact that the potent preparations, whether they represent the entire gland, extracts of it, thyroid proteins or purified thyroxin, contain iodin in organic combination. Hence the iodin content has been made the basis for pharmacologic evaluation by some producers, as suggested by Hunt and Seidell for the ninth revision of the United States Pharmacopeia. Dosage on this basis has not, however, found widespread application. According to Hunt, doubts have been expressed as to whether the iodin content of the gland is really a measure of its physiologic activity; the belief that thyroid contains physiologically "inactive iodin" in large but variable amounts has been strengthened in some quarters by the fact that only a fraction of the iodin can be secured in combination as thyroxin. It is doubtless true that there are fetal and perhaps other thyroid glands with some "inactive" iodin, but it is unlikely that such will find their way in any considerable quantity into medicinal preparations.

The ideal standardization of thyroid products could probably be attained through tests of their comparative potency on basal metabolism. The limitations of such an undertaking on a large scale are obvious. Consequently, it is gratifying to know that the latest studies[1] give renewed support to the assertion of a close parallelism between the physiologic activity of thyroid preparations and their iodin content. Little or no inactive iodin has been found in the thyroids of adult animals such as are likely to enter into commercial products. So long as the laboratory worker can actually measure comparative potency with considerable accuracy in relation to iodin content, physicians ought to be eager to grasp this easily determined index as a guide in therapy. There should no longer be justification for prescribing thyroid "tablets" indiscriminately, particularly when it is realized that in fact one "tablet" may contain 2,500 times as much thyroid as another "tablet." According to Hunt, since some thyroid has five times as much iodin as other preparations, and the physiologic activity is at least closely parallel to the iodin content, there is a possibility of one "tablet" having the physiologic activity of 12,500 other "tablets."

Possible adulterations with nonthyroid iodin are readily detectable by an expert, so that such a menace is subject to control through proper inspection, as in the case of other drugs. It is disconcerting to learn that very few of the thyroid preparations on the market comply with the U. S. Pharmacopeia standard. Careful tests[1] show them "to vary greatly in physiologic and therapeutic activity." If all physicians were to base the dosage, when prescribing thyroid gland, on the pharmacopeial product known as "thyroideum siccum" and to assure themselves that the tablets they prescribe contain a definite amount of dried thyroid gland, the present state of confusion would be relieved and thyroid therapy placed on a more rational basis.

---

[1] Hunt, Reid: Standardization of Thyroid Preparations, Arch. Int. Med. 35:671 (June) 1925.

Current Comment

ANOXEMIA AND ACIDOSIS

Shortage of oxygen is one of the ominous conditions that may at times confront the living organism. According to the evidence of Rous and Drury,[1] the tissues may give indications of impoverished oxygen supply in circumscribed areas, notably in the subcutaneous and cutaneous regions, even while the blood itself has an essentially normal composition. This happens, for example, when through hemorrhage or shock the circulation to an outlying part fails. The symptoms are the development of an acid reaction in the locality involved, an "outlying acidosis" in contrast with the usual alkaline reaction of the cells. Years ago it was noted that lactic acid is eliminated in the urine under conditions in which a deficiency in oxygen might properly be assumed. Objection was presently raised, however, to the conclusion that the excretion of the acid is an index of real acidosis, and that the latter is in turn indicative of oxygen shortage; for it has been observed that lactic acid may occur in the blood and urine under circumstances frankly representative of alkalosis. The current conception of what in truth constitutes an acidosis is somewhat different from that of a few years ago. At that time, increased acid production was synonymous with "acidosis." Conditions in which the kidneys eliminated unusual amounts of beta-hydroxybutyric acid and aceto-acetic acid were frankly termed "acidosis." More recent interpretation of the word has limited it to circumstances in which the hydrogen ion content of the blood has become changed to the acid side; that is, where the p_H is lower than the normal limits of variation, which is ordinarily very small, as a result of the excellence of the neutrality regulations of the body. Investigators have lately written of the "fallacy of asphyxial acidosis," because they have actually observed an alkalosis under conditions of oxygen shortage. The explanation of this lies in the circumstance that, when the oxygen supply is diminished, respiration is promptly accelerated; and, with moderate overbreathing, large amounts of carbon dioxid are eliminated by the lungs, so that the blood may actually show an alkalosis in respect to its reaction. It is now demonstrated, however, that this is merely a temporary, initial phenomenon. According to Koehler, Brunquist and Loevenhart[2] of the University of Wisconsin, anoxemia is fundamentally of an acidotic nature as far as disturbances in the acid-base balance are concerned. Acid production undoubtedly begins within the cells as soon as they suffer from oxygen deficiency. This condition is masked by the development of an alkalosis of the blood due to the "blowing off" of carbon dioxid during the initial period of overventilation. The Wisconsin physiologists have found that the acidosis of anoxemia can be more marked than has been observed in any other condition. The available blood alkali may be depressed to extremely low limits while the carbon dioxid tension, although greatly lowered at first, gradually rises as the acidosis progresses. The nature of the acids arising in the cells in asphyxial acidosis has not been definitely ascertained. Lactic acid, as well as the acids characteristic of diabetic ketosis, has been suspected. Part of the acidity may be due to disturbances in the phosphate systems of the tissues. In any event, the correctness of an acidotic theory for asphyxia now challenges denial.

---

[1] Rous, Peyton; and Drury, D. R.: Outlying Acidosis, J. A. M. A. 85:33 (July 4) 1925.

[2] Koehler, A. E.; Brunquist, E. H., and Loevenhart, A. S.: The Production of Acidosis by Anoxemia, J. Biol. Chem. 64:313 (June) 1925.

FATIGUE AND SUSCEPTIBILITY TO INFECTION

A review of the various factors that may enter into the conservation of human health and help to determine resistance to disease would reveal a formidable array of proved or assumed phenomena. Environment and heredity can unquestionably be directive influences, but even under conditions in which these are most favorable there may be health hazards that are determined by other personal factors. It has been said that the success of a baneful parasite in invading the body and producing reactions that reach the threshold of clinical symptoms may depend on conditions that either "favor the parasite or disarm the host." Such are the workings of the so-called predisposing causes of disease. They may be described vaguely by such utterly indefinite terms as lowered vitality, decreased resistance, increased susceptibility to infection, or lack of physical stamina. From the standpoint of practical hygiene and preventive medicine, it might be more conducive to progress if the factors were more specifically defined, so that they might be made the subject of direct critical investigation. Some of the harmful influences have been described as exposure to wet and cold, lack of fresh air and sunshine, insufficient or unsuitable food, fatigue and traumatism. One of these, fatigue, has been made the subject of study from the standpoint of its influence on susceptibility to infection.[1] It is generally believed that most disorders of this class, as smallpox, measles, epidemic influenza, infantile paralysis, typhus fever, tetanus and yellow fever, have little or no relation to bodily vigor. On the other hand, there is a widespread assumption that predisposing factors are concerned in the immunity to such infections as tuberculosis and pneumonia. Bailey induced fatigue artificially in varying degrees of severity in experimental animals, and observed their relative susceptibility to intratracheal injections of pneumococci. The results seem to indicate that acute fatigue, in the form of physical exhaustion, and chronic fatigue, in the sense of training, are followed by quite opposite effects in the case of pneumonic infection. The first seems to render the animals more susceptible; the second, less susceptible. It would be premature to dogmatize on such preliminary observations under conditions not always easy of exact evaluation. Nevertheless, it need not be concealed that Bailey's findings, as he himself concludes, agree with the general belief that sudden overwork and strain may be detrimental, whereas physical training may increase resistance to certain infections.

---

[1] Bailey, G. H.: The Effect of Fatigue on the Susceptibility of Rabbits to Intratracheal Injections of Type I Pneumococcus, Am. J. Hyg. 5:175 (March) 1925.

SMALLPOX STATISTICS—ONE POSSIBLE INFLUENCE

The harmful influence of such periodicals as Macfadden's *Physical Culture* is obvious. Departing from their peculiar field of exaltation of the physical body, they discourse rabidly on immunity and biology. Their readers are no doubt influenced to oppose or to remain indifferent to vaccination of their children. Indeed, some offer as reasons only that "the leading physical cultural magazines are opposed to it." The results of such propaganda are apparent in our smallpox morbidity. The American Association for Medical Progress, 370 Seventh Avenue, New York, points out that the *Health Bulletin* of the League of Nations credits the United States in 1924 with a greater number of cases of smallpox than any other country. Our total, it is said, was 55,538, as against 46,374 for British India and 24,067 for European Russia. California had 9,425 of these cases; Ohio, 5,334; Michigan, 4,527; Indiana, 3,751; Minnesota, 3,067; North Carolina, 3,659; Georgia and Alabama, more than 2,000 cases each, and Washington, Illinois, Wisconsin, Kansas and Oklahoma more than 1,000 cases each. These fourteen states, with 40 per cent. of the total population, had 79 per cent. of the total number of cases of smallpox. Obviously, mothers must be educated as to the real value of vaccination. Intelligent mothers, unguided, may not read dependable health publications but follow the pseudo-health periodicals that have been mentioned. The family physician can enlighten them on vaccination and can recommend the attractive periodical *Hygeia,* which the American Medical Association established to aid the campaign for sound preventive medicine.

ATLANTIC MEDICAL JOURNAL PUBLISHES JUBILEE NUMBER

The *Atlantic Medical Journal,* representing the Pennsylvania and Delaware state medical societies, issues for September a diamond jubilee meeting number, commemorating the seventy-fifth anniversary of the Pennsylvania society. The souvenir number presents, with five exceptions, portraits of all former presidents; portraits and biographies of the present officers; a brief history of the society by Walter F. Donaldson, secretary, and a description of the medical schools of Pennsylvania. In addition, the number includes the usual scientific matter and prospectus of the meeting to take place in Harrisburg, October 6-9. Special efforts have been made to make the Harrisburg meeting truly representative of the best efforts of modern medical science. The meeting is complete with special conferences of editors, secretaries, women's organizations, public meetings, affiliated organizations and exhibits. The officers of the Pennsylvania State Society and the editors of its journal are to be congratulated on the thoroughness of their work as represented by this exceptional issue.

Association News

MEETING OF JUDICIAL COUNCIL

The Judicial Council of the American Medical Association met in Chicago, September 21. A large amount of business was transacted by the Council, most of it pertaining to questions submitted by individual physicians and by officers of medical societies.

A number of communications submitted to the Council dealt with the establishment of hospital associations, organized for the purpose of securing hospital and medical service at rates considerably below the fees ordinarily in effect. Other communications dealt with the questions of ethics involved in the solicitation of patients through the medium of so-called hospital associations. The Judicial Council held that the Principles of Medical Ethics are reasonably specific with respect to this matter in that Section 4, Chapter II, provides that "solicitation of patients by physicians as individuals, or collectively in groups by whatsoever name these may be called, or by institutions or organizations" is unprofessional.

To meet specific demands that the terms "contract practice" and "sciences allied to medicine" be defined, the Council adopted the following definitions:

CONTRACT PRACTICE

By the term "contract practice," as applied to medicine, is meant the carrying out of an agreement between a physician or group of physicians, as principals or agents, and a corporation, organization or individual, to furnish partial or full medical services to a group or class of individuals for a definite sum or for a fixed rate per capita.

SCIENCES ALLIED TO MEDICINE

By the term "allied sciences," as applied to medicine, is meant those subdivisions of general science that are held by teaching institutions of standing and reputation conferring the degree of Doctor of Medicine to have a place in the professional education and training of a physician.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Joint Meeting.—The Calhoun, Etowah and Talladega County medical societies held a joint meeting at Crystal Springs Lodge, September 8, at the invitation of the Calhoun County Medical Society. There was a business and a scientific session, at which, among others, Dr. James M. Washam, Talladega, discussed "Cardiac Arrythmias"; Dr. Elmus K. Hanby, Attalla, "Scleroderma," and Dr. Irwin P. Levi, Anniston, gave a lantern slide demonstration of fractures.

ARKANSAS

Society News.—The Pulaski County Medical Society will hold a joint meeting with the Faulkner County Medical Society at Conway, October 19.

Personal.—Dr. Charles R. Shinault, Little Rock, has been appointed ship surgeon for the United Fruit Company and will sail between New Orleans and Honduras.

CALIFORNIA

Personal.—Floyd DeEds, Ph.D., has been appointed professor of pharmacology at the Stanford University Medical School, San Francisco.——Dr. James A. Fairchild of Salem, Ore., has been appointed physician to Pomona College at Claremont.

Spotted Fever Near Lake Tahoe.—A fatal case of Rocky Mountain spotted fever is reported in *California and Western*

Medicine as having occurred about 35 miles east of Lake Tahoe. The patient was bitten by ticks near Como. This is the first case as far as known in that part of the state (The Journal, April 21, 1923, p. 1146).

Medical Reserve Bulletin.—Evacuation Hospital No. 90 U. S. A. Reserve, with headquarters at 722 Electric Building, San Diego, has published a bulletin which contains the names of the persons attached to the hospital, a directory of various other organizations, editorials and articles and a diagram of medical service in the theater of operations.

Dr. Dysart Arraigned.—Charged with using the mails to defraud, Dr. John C. Dysart, said to be the owner of a sanatorium in El Paso, Texas, was arraigned, August 13, before U. S. Commissioner Hayden, San Francisco, and bail was fixed at $7,500, it is reported. Dysart was previously indicted following an investigation of a scheme to colonize a large tract of land in Mexico. He is alleged to have sent through the mail advertisements misrepresenting the property.

COLORADO

Hospital News.—Construction work has started on the $2,000,000 tuberculosis sanatorium of the Methodist Church at Colorado Springs.

DISTRICT OF COLUMBIA

Report of Sanitary Survey of Potomac River.—During July, the health department of the District of Columbia and the U. S. Public Health Service conjointly conducted a sanitary survey of the Potomac River in the vicinity of Washington to determine to what extent the water was polluted by the discharge of sewage and other waste materials from Washington and other nearby communities in Maryland and Virginia. The examination of specimens of water obtained from hundreds of places on both sides of the river showed that at all points from far above Washington to the mouth of the Anacosta River the Potomac is "hopelessly" polluted and does not approach the sanitary condition necessary for the protection of public health. The publication of this report, it is said, will prevent further utilization of the river for public bathing purposes in the District of Columbia and necessitate the adoption of a new program for the disposal of raw sewage from the city of Washington. If the present insanitary condition of the river is not overcome, the public health of the community will be endangered and many public works —including some well known memorials—in the park along the river will lose their attraction.

GEORGIA

Personal.—Dr. Henry M. Fullilove, Athens, has been elected president of the Association of Prison Physicians of Georgia. ——Dr. James W. Payne, Americus, county health officer, has resigned and gone to Florida.——The Muscogee County Medical Society, Columbus, has appointed a committee to cooperate with the city manager in selecting a health officer to succeed Dr. James A. Thrash, Jr., who has resigned to engage in private practice, effective as soon as his successor is appointed.

ILLINOIS

Fine and Imprisonment.—It is reported that Dr. Louis H. Hayes, Alton, pleaded guilty, September 9, to violation of the Harrison Narcotic Law and was sentenced by Judge Fitzhenry at Quincy to five years in the penitentiary and to pay a fine of $2,000.

Personal.—Dr. Duke R. Gaskins, Harrisburg, has been appointed chief surgeon and manager of the Union Hospital, West Frankfort.——Dr. Charles Harold Sihler has been appointed county physician for North and South Litchfield; Dr. Charles H. Lockhart, county physician for Witt; Dr. William O. Fish for the village of Fillmore; Dr. Edmund T. Douglas, Hillsboro, for Hillsboro Township, Schram City and the county farm; Dr. Jesse M. Hoyt, Nokomis, for Winona, Coalton and Nokomis, and Dr. Robert N. Canaday for Rountree and Irving townships.——Dr. Paul E. Greenleaf has been appointed district surgeon for the Illinois Central Railroad at Bloomington, to succeed the late Dr. Franklin C. Vandervort.

Chicago

Milk Commission Trip.—The Chicago Medical Milk Commission will entertain physicians on a trip to the Rock River Model Farm of Mrs. Medill McCormick on the Rock River near Rockford, Ill., September 30, leaving the Union Station at 11:30 a. m.

Annual Dinner of Medical Society.—The annual dinner of the Chicago Medical Society will be at the LaSalle Hotel, 6:30 p. m., October 14, when the new officers will be installed. Dr. William Allen Pusey, former president of the American Medical Association, will act as toastmaster. The dinner will be informal ($3 per plate). Dr. Emmet Keating is chairman of the committee on arrangements.

Odontographic Society Debate.—The Odontographic Society of Chicago announces a debate, October 12, in which Weston A. Price, D.D.S., Cleveland, will present the affirmative, and John P. Buckley, D.D.S., Los Angeles, the negative side of the subject: "Resolved, That Practically All Infected Pulpless Teeth Should Be Removed." The debate will be in the Grand Ball Room, LaSalle Hotel, at 8 o'clock; there will be a dinner at 6 o'clock, to which members of the medical and dental professions are invited. Two dollars per plate.

Typhoid Carriers in Chicago.—According to the commissioner of health, there were thirty-seven typhoid carriers on record in Chicago in the quarter ending June 30, this year, an increase of two over the corresponding period of last year. Since 1916 all persons who have recovered from typhoid fever in Chicago have been examined in order to detect carriers, and in this way forty-five carriers have been discovered. It is estimated that there are now 120,000 persons in the city who had typhoid fever previous to 1915 and that among them there are more than 1,000 unrecognized typhoid carriers. The health department desires to learn the names of typhoid carriers and will show those who cooperate every consideration. In the quarter ending June 30 there were forty-six cases of typhoid fever reported to the department of health as compared with thirty-six for the corresponding quarter last year. Three of these cases were due to contact with typhoid carriers.

INDIANA

Society News.—The twenty-fifth annual meeting of the Ohio Valley Medical Association will be in Indianapolis, November 10-11, at the Claypool Hotel. Among the speakers will be Drs. Joseph L. Miller, Chicago, John B. Deaver, Philadelphia, Daniel Eisendrath, Chicago, Martin H. Fischer, Cincinnati, and Curran Pope, Louisville, Ky.

More Typhoid Suits at Fort Wayne.—The city of Fort Wayne and the Pennsylvania Railroad Company have been made defendants in two more suits filed in superior court, in which damages are sought for deaths in the typhoid epidemic in 1923. It is charged that the railroad's water system was connected with the city water supply, and that certain persons died as a result of an epidemic which followed.

Enrolment at State Medical School.—The Indiana University School of Medicine, Indianapolis, opened, September 16, with an enrolment of about 275 students, an increase of 15 per cent. over the registration of last year and the largest registration, it is reported, in the history of the school. Members of the faculty held a reception for the medical students, September 18, in the medical school building which was in the nature of a "get-acquainted" meeting. Dr. Thurman B. Rice, who for the last year has been connected with the division of laboratories of the state department of health, returned to the medical school faculty this fall as assistant professor in the department of bacteriology and public health.

Health Food Show.—Under the auspices of the National Dairy Exposition, October 10-17, at Indianapolis, there will be a "health food show" under the personal direction of Elmer V. McCollum, D.Sc., professor at the School of Hygiene and Public Health, Johns Hopkins University, Baltimore, which is said to be the first of its kind in this country. Foods that have been found essential will be displayed and many other foods classified by Dr. McCollum, their food values charted and details of their preparation demonstrated by nutrition workers. The purpose of the health food show is to educate the public to the quality of the more important agricultural foods and to emphasize the supplementary relation of some foods to others.

IOWA

Personal.—Dr. William Jepson, Sioux City, was elected president of the Association of Professional Men's Clubs at the annual convention in Milwaukee, September 11-12.

Hospital News.—The Eleanor Moore County Hospital, Boone, which was recently damaged by fire, will remodel the building and heating plant at a cost of about $35,000.

The month of September opened, it is said, with a potential epidemic in Sandusky numbering twenty-four known cases, with twenty-one of them on the same milk route. There are sixteen cases under one physician's care in Oak Hill.

OKLAHOMA

Another County Health Unit.—The commissioners of Kay County recently voted to maintain a county health unit. Dr. Merl C. Clift, Blackwell, has been appointed county physician and will have charge of the sick at the county farm and jail.

Society News.—The Southwest Branch of the American Urological Association will meet in Oklahoma City, November 8-9. Dr. William J. Wallace, Oklahoma City, was elected president of the branch at the meeting in Denver.——Dr. Frank L. Watson, McAlester, has been elected president of the Southeastern Oklahoma Medical Association, and Dr. John A. Haynie, Durant, secretary-treasurer.

OREGON

Personal.—Prof. Wilhelm Neumann, Vienna, Austria, spent several days in Portland recently as a guest of Dr. Ray W. Matson.

State Medical Election.—At the annual meeting of the Oregon State Medical Society, Medford, September 2-4, Dr. Willis B. Morse, Salem, was elected president-elect; Drs. William W. P. Holt, Medford, Warren C. Hunt, Klamath Falls, and James H. Robnett, Albany, vice presidents; Dr. Frederick D. Stricker, Portland, secretary, and Dr. John Earl Else, Portland, treasurer.

Hospital News.—The Sisters of Charity of the House of Providence have purchased ground in Astoria for a new hospital which will cost $400,000 and will contain 125 rooms.——A three-story hospital will be constructed at Cottage Grove, with the second floor for offices for physicians, the first for business houses, and the third for hospital purchases with a capacity of from twenty-five to forty beds.

PENNSYLVANIA

New Law Requires Annual Registration.—A law becomes effective, January 1, 1925, which provides that all persons engaged in the practice of medicine, or any allied branch of the healing art, in the state of Pennsylvania, must register with the Board of Medical Education and Licensure in the Department of Public Instruction as practitioners annually on or before the first day of January of each succeeding year. The penalty for persons who practice without having registered as provided, on conviction before a magistrate, alderman, or justice of the peace in the county in which the offense is committed, is a fine of not less than $10 and in default ten days imprisonment.

Side Lights on the State Meeting.—The hosts to the state medical society which meets at Harrisburg will be the counties of Cumberland, Dauphin, Lancaster, Lebanon and York. There will be a Jefferson dinner Wednesday evening, October 7, at the University Club, Harrisburg, and Tuesday evening a dinner for visiting women physicians at the Penn-Harris Hotel. The Roentgen Ray Society of Central Pennsylvania will meet in the ballroom of the Penn-Harris Hotel, Friday, October 9. The state health department will display an exhibit at its quarters in the South Office Building. The public meeting will be in the Y. M. C. A. Building, Second and Locust streets, the principal speaker being Dr. Alexander Lambert, New York, former president of the American Medical Association. The twentieth annual conference of secretaries will be at the Harrisburg Club, Front and Market streets, Tuesday, 5:15 o'clock. There will be a conference and luncheon of editors Tuesday, 1 o'clock, at the University Club. The scientific exhibit will be in Parlors B and C at the Penn-Harris Hotel. The Harrisburg headquarters of the state medical society are at 230 State Street.

Philadelphia

Hospital Sold.—The buildings of the Medico-Chirurgical Hospital have been sold by the trustees of the University of Pennsylvania.

Personal.—Dr. Hubley R. Owen, chief police surgeon, was guest of honor at a dinner arranged by all of the police surgeons in the city on his recent return from Europe.——Dr. Gabriel J. Kraus recently received the Order of Haller Swordsmen from the Polish government in recognition of services to that country during the World War.

RHODE ISLAND

Smallpox Outbreak.—For the first time in twenty-five years smallpox has appeared in Woonsocket, eight cases having been reported, September 6. The state board of health is cooperating with the local health officer.

Clinical Conferences of State Society.—A committee appointed, in accordance with the vote of the state medical society at its last meeting, to organize clinical conferences at various hospitals throughout the state, met, August 18, at Providence, and elected Dr. Halsey DeWolf, chairman, Dr. James W. Leech, secretary, and Dr. Jesse E. Mowry, treasurer. Letters were sent to the boards of trustees of various hospitals requesting cooperation in furthering the plan, and to the secretary of the staff of these hospitals. It was decided to confine the conferences at present to hospitals whose staffs are affiliated with the Rhode Island Medical Society and that schedules of the conferences be sent to all physicians in the state. The committee voted to establish a registration fee of $5 for one course and of $10 for three courses.

SOUTH CAROLINA

Meeting of Medical Deans.—The Association of Deans of Medical Colleges of America will meet in Charleston, October 26-28. All of the sessions will be held at the Fort Sumter Hotel.

SOUTH DAKOTA

Aberdeen's Milk Supply.—As a result of a survey of the milk supply by the state board of health, the city of Aberdeen passed an ordinance about a year ago placing its milk supply under the supervision of the full-time health organization. In the first year, under the ordinance, every herd supplying milk to Aberdeen was tested for tuberculosis and fifty-two animals were removed. Twenty-three dairy farms were inspected a number of times; they have met the requirements of the ordinance. All milk now sold in Aberdeen is in sealed bottles with the date of production and name of the dairy on the cap, and milk served in hotels and restaurants is in individual small bottles. The problem of milk sanitation here has been largely educational. Most of the milk was brought to the city not by dairy farmers but by "wheat farmers" living a few miles of the city, who formerly handled milk under very insanitary conditions. The inspector visited these farms repeatedly, instructing the farmers in sanitation; today the seventy-three sources of supply have, with few exceptions, met the requirements. All pasteurization plants now use an automatic thermometer, which insures the proper temperature. The work is not completed; about 15,060 gallons of milk each month are sold as raw milk and 31,350 gallons are pasteurized.

TENNESSEE

Typhoid at Chattanooga.—The outbreak of typhoid fever at Chattagooga amounted to thirty-five cases, September 10, it is reported, fifteen of which were in the thirteenth ward.

Society News.—The Walnut Log Medical Society will hold its fourth annual meeting at the Walnut Log Hotel, Reelfoot Lake, September 29-30. There will be a barbecue Tuesday at noon and a musical program and dance in the evening. Among others, Dr. William C. Colbert, Memphis, will speak on "*Bacillus Pyocyaneus* Septicemia: A Report of Two Cases"; Dr. Oval N. Bryan, Nashville, "Sodium Thiosulphate in Metallic Poison"; Dr. Virgil E. Simpson, Louisville, Ky., "Dysthyroidism," and Dr. Fred W. Rankin, Lexington.

TEXAS

Annual Clinic.—The Dallas County Medical Society held its annual clinic at the Baylor Hospital, Dallas, September 8, under the presidency of Dr. William D. Jones. Among many others on the program was Dr. Charles M. Rosser, Dallas.

Meeting of State Society's Committees.—Following an all day session of various committees of the Texas State Medical Association, at Fort Worth, August 25, the Tarrant County Medical Society gave a banquet inviting, among others, members of the Dallas County Medical Society. Dr. Charles M. Rosser, president of the state medical association, presided. The principal speaker was Attorney General Moody, and his subject, "The Medical Practice Act Should Be Enforced."

UTAH

Hospital News.—Dr. Lester D. Mahannah has purchased the Smith Hospital at Brigham and named it the Mahannah Hospital.

VIRGINIA

Freshman Class Filled.—The number of applicants for admission to the Medical College of Virginia, Richmond, this fall exceeded the quota of eighty by about 200. The freshman class represent students trained in twenty-eight colleges in the country.

Personal.—Dr. Arthur D. Knott, county health officer of Accomac County, has resigned to accept a similar position at West Palm Beach, Florida.——Dr. Isaac C. Harrison has resigned as a member of the school board of Danville.——Dr Percy E. Schools has been appointed head of the Municipal Tuberculosis Hospital of Richmond and will take up his duties, October 1.——Dr. James H. Ferguson, Clifton, has been elected president of the Fairfax County Medical Society.

State Medical Meeting.—The Medical Society of Virginia will meet, October 13-16, at the Jefferson Hotel, Richmond. The guest speakers will be Drs. George E. de Schweinitz, Philadelphia, former president of the American Medical Association; Alfred Stengel, Philadelphia, and David S. Hillis, Chicago. A new feature will be motion pictures on professional subjects. There will be a symposium on "Puerperal Infection" and a scientific exhibit. Dr. Thomas D. Jones, Medical Arts Building, Richmond, is general chairman in charge of the meeting. The usual annual golf tournament will be on Tuesday, October 13. Those wishing to play should write Dr. Emmett H. Terrell, Medical Arts Building, Richmond. The first session of the meeting will be Tuesday.

Society News.—At the meeting of the Augusta County Medical Society, Staunton, August 6, the councilor from the tenth district, Dr. Percy C. Graybill, Fincastle, spoke, and the retiring president, Dr. David G. Gochenour, Stuarts Draft, tendered a banquet to the members and guests. Dr. Joseph L. Alexander, Staunton, was elected president for the coming year, and Dr. John E. Womack, Staunton, secretary. This society held a special meeting, August 20, to consider steps for the betterment of dispensary service to the indigent poor of the city and county, and appointed a committee, comprising Drs. Kenneth Bradford, Achilles L. Tynes and Alexander F. Robertson, Jr., to investigate and render a report.——The Medical Association of the Valley of Virginia held its semiannual meeting, September 24, at Winchester.

WASHINGTON

Health Officers' Meeting.—The county health officers of Washington held their annual meeting at Seattle, September 15-16. The guests were Dr. Frederick D. Stricker, secretary, Oregon State Medical Society, and Dr. Henry E. Young, Victoria, B. C., provincial health officer of British Columbia.

Personal.—Dr. Curtis W. Welch, Nome, Alaska, arrived in Seattle, September 16, en route to his home in New Haven, Conn. Dr. Welch, the only physician in Nome, was in charge of the epidemic of diphtheria in that city last winter. Arrangements have been made for a physician from Seattle to go to Nome during Dr. Welch's absence.

WEST VIRGINIA

Society News.—Dr. Joseph C. Bloodgood, Baltimore, will address the Ohio Valley Medical Society of Wheeling, October 9, on cancer and will conduct cancer clinics at the Ohio Valley General and the Wheeling hospitals.

Appointments to Health Council.—Dr. Hugh A. Barbee, Point Pleasant, and Dr. Benjamin O. Robinson, Parkersburg, have been appointed by the governor as new members of the state health council, and Dr. Harry G. Camper, Welch, reappointed. Dr. Barbee succeeds Dr. Vincent T. Churchman and Dr. Robinson succeeds Dr. Thomas L. Harris, Parkersburg. These appointments are for terms of four years. Members of the health council serve without pay.

WISCONSIN

State Medical Election.—At the annual meeting of the State Medical Society of Wisconsin, Milwaukee, September 16-18, Dr. Joseph F. Smith, Wausau, was elected president, and Drs. Carl Henry Davis, Milwaukee, William E. Fairfield, Green Bay, and William D. Stovall, Madison, vice presidents. The secretary and treasurer will be selected by the Council in January. The next annual meeting will be held in Madison in 1926.

PHILIPPINE ISLANDS

Appointments to Health Department.—Dr. Jacobo Fajardo, director of the Philippine Health Department, recently appointed Dr. Antonio Ejercito surgeon in the Philippine Health Service with station at Meisic, and Dr. Jose R. Sison as acting district health officer of the Province of Agusan.

Illegal Practitioner Fined.—Judge Pedro Concepion, Manila, recently fined Paul Verzosa, "dean of the College of Philosophy of the Liceo de Manila," 200 pesos for practicing medicine without a license. The evidence showed that Verzosa had advertised in a newspaper, prefixing the title "Dr." to his name. Verzosa said in court, it is reported, that he used the title for advertising purposes in view of the fact that he was a "doctor in applied mental science."

Board of Regents' Meeting.—At a recent meeting of the board of regents of the University of the Philippines, it was proposed to appoint Dr. Andres Bautista head and professor of the department of medicine; Dr. Antonio G. Sison, professor, Dr. Perpetuo D. Gutierrez, associate professor, and Dr. Pedro T. Lantin, among others, assistant professor. The total budget for the department of medicine amounts to 17,840 pesos. The board awarded Rockefeller Foundation Fellowships to Narciso Cordero (physiology), Dr. Jose I. Abuel (brain surgery) and Dr. Fide Cuajunco (microscopic anatomy).

Society News.—At a recent meeting of the Manila Medical Society in the library of the Philippine General Hospital, Francisco G. Kee and Jose Santillan read a joint paper on "Horse Serum Treatment of Carbunculosis and Similar Affections."——The Bicol Health Officers Assembly met at Albay, August 17-19, to discuss among other things the yaws campaign and leprosy, malaria and hookworm control and to systematize the work in sanitation. On the last day of the convention a special effort was made to secure the attendance of all the insular, provincial and local officials in that section of the islands.

GENERAL

Change of Date of Meeting.—The Central Neuropsychiatric Association has changed the date of its meeting at Ann Arbor, Mich., from October 16-17 to October 23-24. Dr. Karl A. Menninger, Topeka, Kan., is secretary of the association.

Meeting of Military Surgeons.—The Association of Military Surgeons of the United States will meet in annual session at the Hotel Waldorf-Astoria, New York, October 8-10. Among various other things, the program includes a review of, and demonstration by the One Hundred Second Medical Regiment, Twenty-Seventh Division, and trips to West Point, Mitchel Field, Ellis Island, Army Medical Supply Depot and Naval and other hospitals. Physicians who have or are now serving in the army, navy, marine corps or the reserves, national guard or public health service are eligible to membership on payment of a fee of $5 per year; this includes a subscription to the *Military Surgeon.*

Beware of Mr. Fox.—Reports are coming in from Chicago and vicinity relative to the activities of one George A. Fox or "Alex" Fox. Many years ago Fox attended Rush Medical College for one year but was never graduated by that school. His scheme is to call on physicians, usually graduates of Rush Medical College, and to ask them to cash or endorse a check which turns out to be worthless. A Chicago physician reports that Fox called at his home in the latter part of August and asked him to cash a $5 check drawn on the First Wisconsin National Bank of Milwaukee. The doctor did not cash the check but did endorse it. Fox took the check to a local drug store, in the meantime raising it from $5 to $10, and obtained the money. The check was returned in a few days marked "No Account."

Offer to Aid a Rural Hospital.—The Commonwealth Fund of New York offers to assist in the building of one hospital in a rural section. Conditions are laid down governing the distance from existing hospitals, the number of physicians for staffing the hospital, the character of highways and transportation and the willingness and ability of the community to defray deficits from operation. The fund offers to pay two thirds of the cost of construction and equipment. If the experience in building one such hospital warrants an extension of the program, the Commonwealth Fund will consider making offers to other districts. Applications are now being received and considered at the office of the Consultant of Rural Hospitals, 289 Fourth Avenue, New York. A decision as to the first unit will be made probably in the early fall.

Narcotic Regulations Revoked.—The Prohibition Commissioner revoked, September 18, the instructions issued by him to narcotic agents and collectors of internal revenue to refuse registration under the Harrison Narcotic Act to applicants convicted of two or more serious violations of the act or of single violations of a flagrant character. The revocation does not cover, however, except by possible implication, the instructions requiring applications submitted by persons arrested and held for action by the grand jury, or indicted, to be held by the collector as under investigation to await the outcome of the trial. It was through action in conformity with the instructions named above that registration was recently refused certain applicants by the Collector of Internal Revenue at Nashville, in which cases the court held that the refusal was without authority of law (The Journal, August 29, p. 680).

Conference on Pharmaceutical Research.—At the fourth annual meeting of the National Conference on Pharmaceutical Research, Des Moines, Iowa, August 22, a motion was passed directing the chairmen of the ten standing committees to act as a committee to report next year as to the advisability of rearranging the work with the aim of avoiding duplication. The conference passed a resolution endorsing unanimously the Pharmacy Building Campaign and urging the active assistance of all members of affiliated bodies. The census of Research of 1925 was approved by the conference, the chairman was directed to conduct a similar census in 1926 and to keep in touch with the 239 research workers reported in 1925. The Census of Graduate Students will be consolidated with the Census of Research. The research conference elected for the year 1925-1926 H. V. Arny, New York, chairman; J. H. Webster, Detroit, vice chairman, and J. C. Krantz, Jr., Baltimore, secretary-treasurer.

Research in Nervous and Mental Diseases.—A preliminary list of contributions offered for the meeting of the Association for Research in Nervous and Mental Diseases, to be held in New York City in December, includes, among others, "Biology of Sex in Schizophrenia," Dr. Charles E. Gibbs, New York; "The Outcome of Schizophrenic Reactions Observed in Soldiers During the War," Dr. Thomas W. Salmon, New York; "Historical Survey: Pre-Kraepelinian Conceptions, Kraepelin's Contributions, Later Developments," Dr. Adolf Meyer, Baltimore; "The Language of Schizophrenia," Dr. William A. White, Washington, D. C.; "Schizophrenic Reactions in Prisoners," Dr. Herman M. Adler, Chicago; "Prognosis of Schizophrenia," Dr. Edward A. Strecker, Philadelphia; "Schizophrenia and Epidemic Encephalitis, Their Alliances and Differences," Dr. Smith E. Jelliffe, New York; "Endocrine and Biochemical Studies in Schizophrenia," Dr. Karl M. Bowman, Boston, and "Treatment of Schizophrenia," Dr. Henry A. Cotton, Trenton, N. J.

Interstate Postgraduate Assembly.—In the program of the St. Paul meeting, October 12-16, announcement is made of the intention of the managing director to supervise a foreign clinic tour in 1926 to Naples, Rome, Florence, Venice, Bologna, Vienna, Munich, Budapest, Berne, Geneva, Amsterdam, The Hague and Brussels. The tour will start the latter part of April or the first part of May; besides the clinic features there will be trips to scenic points in the various countries. It is also announced that the assembly has established an "interstate community trust fund" under careful legal protection for perpetuating legacies and subscriptions, and that the income from the fund will be used in carrying on its scientific and postgraduate work. The association requests members of the medical profession to remember the foundation in their "Last Will and Testament." Dr. Joseph Schneider, Milwaukee, recently made a gift to the fund of $10,800, which will be maintained as the Schneider Endowment and the income devoted to medical research with particular reference to diseases of the eye.

Society News.—The fifth annual meeting of the American Association of Oral and Plastic Surgeons will be in Philadelphia at the Bellevue-Stratford Hotel, October 26-27. Members of the medical and dental professions are invited to attend the scientific sessions which will be coincident with the clinical congress of the American College of Surgeons.——At the thirty-eighth annual meeting of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Hot Springs, Va., September 18, Dr. George C. Mosher, Kansas City, was elected president; Drs. Edmund D. Clark, Indianapolis, and Palmer Findley, Omaha, vice presidents; Dr. James E. Davis, Detroit, secretary, and Dr. William G. Dice, Toledo, Ohio, treasurer. The next meeting will be in Chicago, September, 1926.——At the annual meeting of the American Electrotherapeutic Association, Chicago, September 15-17, Dr. Victor G. Pedersen, New York, was elected president; Drs. Tilman Howard Plank, Chicago, Harry E. Stewart, New Haven, Conn., Norman E. Titus, New York, George J. Ott, Boston, and Curran Pope, Louisville, vice presidents; Dr. John W. Travell, New York, treasurer, and Dr. Richard Kovacs, New York, secretary.

FOREIGN

Tropical Medicine Congress.—The annual meeting of the German Tropenmedizinische Gesellschaft is to be held at Hamburg, October 15-17, in connection with the twenty-fifth anniversary of the foundation of the Tropeninstitut there.

Epidemic Encephalitis in Germany. — The *Münchener medizinische Wochenschrift* states that 156 cases of epidemic encephalitis were recorded in 1924, although notification is not compulsory except in Baden. There were twenty cases in Baden, seven in Bavaria, eight in Hessen, three in Brunswick and 118 in Prussia.

Reduced Visa Rate for Physicians Going to Austria.—Dr. Edward A. Pinkus, secretary of the American Medical Association of Vienna, writes that, on the receipt of a written statement from the American Medical Association at Chicago, that a physician is in good standing in the American Medical Association and that he is going to Vienna for study, the Austrian authorities in the United States will grant to this phyician a reduction of 50 per cent. in the price of the Austrian visas.

Personal.—Dr. Lina Stern, formerly assistant to the professor of physiologic chemistry, University of Geneva, has been appointed to the chair of physiologic chemistry in the University of Moscow.——Sir Arbuthnot Lane has been appointed an honorary member of the Belgian Académie royale de médecine at Brussels by royal decree.——The executive committee at Paris of the International Tuberculosis Association has named Dr. Theobald Smith, Princeton, as a new president for the conference which convenes at Washington, Sept. 30, 1926. Prof. K. Faber, Copenhagen, addressed the recent scientific public meeting of the association on "Sanocrysin Treatment of Tuberculosis."

Diploma in Radiology.—The University of Edinburgh proposes to establish a diploma in radiology in connection with the new radiologic department which is being constructed at the Royal Infirmary of Edinburgh, a part of which will be ready for occupancy about Jan. 1, 1926. The course in radiology will include instruction in the use of radium, roentgen ray and ultraviolet radiations, and the lectures on radiology will be delivered by Dr. Woodburn Morison, head of the department. It is planned to keep the course practical and to have it occupy the whole day during a period of nine months. Shorter courses will be arranged for practitioners who have not sufficient time at their disposal to take the complete course.

Council of Medical Education for India.—The *Indian Medical Record* (August) publishes a bill which will be introduced into the legislative assembly to provide for the regulation of medical education in that country. It would establish a Council of Education whose duty it would be to establish a register for India of medical practitioners, and a qualification in medicine equivalent to that in the United Kingdom. The council would comprise a president and six members to be named by the governor general in council; six members to be elected by practitioners registered under the Medical Acts of the Provinces of India who have been on the teaching staff of independent schools; one member on the teaching staff of institutions recognized under this act to be named by each provincial government; one member to be elected by the senate of every university in India established by an act of the government of India; one member from each province to be elected by medical practitioners registered under the Medical Act of the province holding a qualification of a university in the province, and one member from each province to be elected by medical practitioners registered under the Medical Act of the province other than those who hold a qualification from a university in the province. The members of the council would hold office for five years but would be deemed to have vacated their appointment on absence from the country for more than six months or on absence without sufficient reason from three consecutive meetings of the council.

Deaths in Other Countries

James Stewart Fowler, joint editor of the *Edinburgh Medical Journal* and formerly secretary and registrar of the Royal College of Physicians, specialist in diseases of children, at Elie, Fifeshire, Scotland, August 24.——**Dr. Suleiman Numan Pasha**, professor at the Constantinople medical school, formerly chief of the Turkish army medical department.——Dr. Fedriani, professor of surgery at Seville and president of the local medical society.——**Prof. Silva Amado**, Lisbon, of the chairs of hygiene and forensic medicine, senator, formerly president of the local medical society and a leader in public health work, aged 85.——**Dr. R. Quinton**, Paris, a pioneer in promoting aviation, offering in 1908 a prize of 10,000 francs for the first sustained volplane flight. He founded the Ligue nationale aérienne about that time.

Government Services

All Veterans' Bureau Vocational Schools Closed

The director of the Veterans' Bureau has just reported to the director of the budget the return to the U. S. Treasury of $69,701,000 of its appropriation for the last fiscal year. There was a decrease of more than 1,000 employes in the regional offices and about 200 in the central office in Washington. During the ten months ending April 1, 1925, the cost per day per patient in fifty-two Veterans' Bureau Hospitals was reduced from $4.57 to $3.95. All of the twenty-one vocational schools were closed during the year, the completion of training of students being done in private institutions. There were economies made in transporting patients, in the cost of medical examinations and treatments, in the travel of employes, in the building costs, and the accounting systems were revised. The saving was made despite an increase in compensation pay for disability and death benefits of about $14,000,000 over the previous year.

Navy Personals

Commander Curtis B. Munger will be relieved, September 30, from duty in the Bureau of Medicine and Surgery and will report at Mare Island, Calif., for duty on U. S. S. *Relief*. Commander H. W. Smith will succeed Dr. Munger at the Bureau of Medicine and Surgery.——Lieut.-Com. Howard A. Tribou will be relieved from duty at the Naval Hospital, Newport, R. I., and will sail, November 24, from San Francisco for duty with the Asiatic Squadron.——Commander John B. Mears will be relieved from duty at the Naval Hospital, Mare Island, Calif., and sail, November 24, from San Francisco, for duty at the Naval Hospital, Canacao, P. I., as executive officer.

Delegates to Meetings Abroad

Surg. Howard F. Smith, U. S. Public Health Service, has been directed to proceed to Tokio, Japan, and return, for the purpose of attending the Sixth Congress of the Far Eastern Association of Tropical Medicine, to be held in that city, October 11-31.——Surg. Lionel E. Hooper, U. S. Public Health Service, was directed to proceed to Amsterdam, Holland, and return, to attend the Fourth International Conference on Industrial Accidents and Diseases, September 5-12.——Surg. Walter W. King, U. S. Public Health Service, has been directed to proceed to Rome, Italy, and return, to attend the International Congress on Malaria to be held in that city, October 3-5.

Changes in Surgeon General's Office

Lieut.-Col. Joseph F. Siler has reported to the Surgeon General for duty in his office following foreign service in Manila, P. I., and will relieve Major George C. Dunham, who has been in charge of the Professional Service Division.——Col. Carl R. Darnall, after a tour of duty in Hawaii, will report to the Surgeon General for duty in his office as executive officer early in November, succeeding Lieut.-Col. Robert U. Patterson, who assumes command of the Army and Navy General Hospital, Hot Springs National Park, Ark.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 12, 1925.

State Aid for Hospitals

The ministry of health issued a statement with regard to the report of the Voluntary Hospital Commission on accommodations in England and Wales. The distribution of the government grant of $2,500,000 and the corresponding effort made by voluntary agencies have resulted in a marked improvement in the serious financial position of the voluntary hospitals after the war, so far, at least, as current maintenance expenditure is involved. Attention has since been directed particularly to the need for the provision of additional voluntary hospital accommodation. Early in 1924, the minister of health asked the Voluntary Hospital Commission to report the extent of the additional voluntary hospital accommodation required in England and Wales, and the best means of providing and maintaining it. The commission in its report points out that there is no general agreement on the number of hospital beds required for a given unit of the population; and it has not attempted to lay down any ideal standard, as an inquiry could be more usefully directed to consideration of what extensions could be regarded as immediately necessary and possible of accomplishment within a reasonable period. Comparatively little building has been undertaken since 1914, and the hospitals have not, therefore, expanded with the growth of the population. But there has been a distinct improvement in the last two years, though a large proportion of the building undertaken in this period has been in respect of additional accommodation for nurses. As the result of questionnaires issued to the hospitals, it is found that the additional accommodation required outside London amounts in England and Wales to 10,614 beds, and King Edward's Hospital Fund recommends an addition in London of 2,088 beds. The commission regards the London figure as a conservative estimate. But the recommendations of some provincial committees seem to be in excess of the immediate needs; and the commission therefore reduced them by 20 per cent. and recommends that the need in the provinces amounts to 8,000 additional beds. The reports of the local voluntary hospital committees and the experience of the commission in distributing the parliamentary grant of $2,500,000 toward maintenance deficits point to the conclusion that the voluntary system has now recovered sufficiently to be able to undertake the maintenance of the 10,000 additional beds proposed. But, though during the last few years the majority of the hospitals have been able to balance their budgets, there has been no margin out of which capital for expansion on any considerable scale could be provided. Under the circumstances, the commission recommends some measure of state assistance as essential. It advises that at the present-day prices, excluding the cost of site, furniture and equipment, a reasonable figure for the cost of extending plain buildings of a utilitarian character would be $2,000 a bed, and it recommends that the state should provide 50 per cent. of the cost up to a maximum of $1,000 a bed on condition that the remainder of the expenditure is raised locally or is available from existing building funds. The first condition of administering such a grant should be to require each local voluntary hospital committee to submit a scheme for the provision of the necessary new beds in its area, if necessary in consultation with the local committees of any other areas interested. In addition, it would be necessary to require that the beds be provided where they are most urgently needed; that full and effective use be made of them, and that they be provided at the lowest cost commensurate with the needs of the area. Extensions should, when possible, take place on the periphery instead of at the center, and the erection of costly buildings of elaborate design should in general be discouraged, preference being given to buildings of a utilitarian and durable type.

New Regulations for the Use of Preservatives in Food

New and stringent regulations for the use of preservatives in food have been issued by the ministry of health. The subject is of great importance in this country because of the large proportion of our food that is imported, much from the other side of the world. The new regulations are the result of a report made by a departmental committee appointed in 1923. Its main recommendation is that cold storage should take the place of preservatives. But the present equipment in this country for the purpose is deficient. Time is therefore given for the adoption of the new system. The regulations do not come into force generally until the beginning of 1927, and not for a year later in the case of butter and cream. Chemical preservatives are not entirely forbidden, but they are reduced to sulphur dioxid, including sulphites, benzoic acid and benzoates, in specified proportions and for a limited number of foods. Boric acid is entirely barred—a regulation which has given rise to much protest on the part of the trade and has evoked the old controversy, which seems to be still unsettled, whether in the small quantities used for preserving food it is injurious. The accompanying table shows the foods for which preservatives are llowed, the preservative and the proportion it must not ceed.

Foods for Which Preservatives Are Allowed

Food	*Preservative*	Parts per million
1. Sausages and sausage-meat containing raw meat, cereals and condiments	Sulphur dioxid	450
2. Fruit and fruit pulp, not dried:		
(a) Strawberries and raspberries	Sulphur dioxid	2,000
(b) Other fruit	Sulphur dioxid	1,500
3. Dried fruit:		
(a) Apricots, peaches, nectarines, apples and pears	Sulphur dioxid	2,000
(b) Raisins and sultanas	Sulphur dioxid	750
4. Unfermented grape-juice and nonalcoholic wine made from such grape-juice if labeled in accordance with the rules contained in the second schedule to the regulations	Benzoic acid	2,000
5. Other nonalcoholic wines, cordials, and fruit juices, sweetened or unsweetened	Either sulphur dioxid or benzoic acid	350 600
6. Jam (including fruit jelly prepared in the way in which jam is prepared, but not including marmalade made from citrous fruits)	Sulphur dioxid	40
7. Candied peel	Sulphur dioxid	100
8 Sugar (including solid glucose)	Sulphur dioxid	70
9. Corn syrup (liquid glucose)	Sulphur dioxid	450
10. Gelatin	Sulphur dioxid	1,000
11. Beer	Sulphur dioxid	70
12. Cider	Sulphur dioxid	200
13. Alcoholic wines	Sulphur dioxid	450
14. Sweetened mineral waters	Either sulphur dioxid or benzoic acid	70 120
15. Brewed ginger beer	Benzoic acid	120
16. Coffee extract	Benzoic acid	450
17. Pickles and sauces made from fruit or vegetables	Benzoic acid	250

Coloring matters are also restricted. Compounds of antimony, arsenic, cadmium, chromium, copper, mercury, lead or zinc, the vegetable coloring matter gamboge, and the coaltar colors picric acid, dinitrocresol, naphthol yellow, imperial yellow or rosolic acid, are all forbidden.

The regulations as regards labeling are also stringent. They apply to sausages, sausage meat, coffee extract, pickles and sauces and (where the proportion of bezoic acid exceed 600 parts per million) grape-juice and wine. When any c[illegible] these articles contains preservative, this fact must be declare[illegible] on the label. In the case of grape-juice or wine there m[illegible] be added "and is not intended for use as a beverage." An article sold as a preservative must bear a label declaring the preservative and the percentage present.

The Galilee Skull

The British school of archeology in Jerusalem has discovered the fossil remains of Neanderthal man in Palestine. In the London *Times,* Sir Arthur Keith points out the importance of this discovery. In recent years Neanderthal man has taken the center of the prehistoric stage. It is now certain that for a long time Europe was inhabited solely by this peculiar species of mankind—one that differed much more from any living race than does the modern European from the modern negro. The fossil remains of Neanderthal man have been found in Europe as far south as Gibraltar and Malta, as far north as central Germany, as far west as Jersey, and as far to the east as Croatia, but until now they have never been found outside the limits of Europe. The center of his distribution in ancient times seems to have been the Dordogne region of France; at least it is there that his fossil remains have been found most often, and it was in the cave deposits of that region that we first learned the forms of implements that he fashioned and the extinct kinds of animals that he hunted. Long ago French archeologists gave the name of "Mousterian" to the kind of stone implements he made, and it is now certain that the period of this Mousterian culture was a long one. Sir Arthur Keith is working on the hypothesis that its beginning dates back to about 40000 B. C. and that it came to an end about 20000 B. C. The Mousterian culture was somewhat abruptly replaced in Europe by one of another kind—the Aurignacian, and with this culture appeared men of the modern European type. The transition is too sudden to permit us to suppose that Neanderthal man had been transformed into modern or Neanthropic man; besides, although many of his features were primitive or apelike, others had become so peculiarly specialized that we cannot regard Neanderthal man as an ancestor of modern man.

Mr. Turville-Petre found the cranial fragments near the lake of Galilee in a cave deposit marked by the Mousterian culture; the fossil remains ought to be those of Neanderthal man, if prehistoric culture and race followed the same sequence in Palestine as they did in Europe. The remains consisted of the frontal bone, the right malar, and the right half of the sphenoid. All the bones were perfectly preserved; they were as hard and firm as porcelain; the edges where they joined were clear cut and made a perfect fit when placed in their relative positions. When the parts were put together and placed in their natural relationships, Keith had no doubt that Mr. Turville-Petre's original identification was right; the Galilean man was a member of the Neanderthal species. Thus, even in remote times, Palestine, and, one may legitimately infer, Asia Minor, went with Europe; they had a corresponding race of men and a similar culture. Although the Galilean man is of the Neanderthal species, Keith considers that he represents a peculiar variety of that species, one that makes an approach in several respects to modern man. Neanderthal man, like living man, was broken up into races and breeds. The best known type is that represented by fossil remains found in France, Belgium and Germany—short, stout men with massive heads, which were long, wide, but low and flat in the crown; their heads were bunshaped, their foreheads low and slanting, with great, beamlike orbital ridges, which rivaled those of the gorilla. At Gibraltar [illegible]ther type of Neanderthal man was found—one with a [illegible]ead and small brain. At Krapina, in Croatia, a still ra[illegible]iety was found some twenty years ago; d[illegible], short and low crowned; the bones of [illegible] like those of living races than is the [illegible] case with the big-headed type of central Europe. The Galilean type finds its nearest European allies in the Croatian or Krapina type, but it differs from that type and all others of Europe in having a narrow and high vaulted skull, in this respect making an approach to modern man. Although the eyebrow ridges are massive and strong, yet the bone enclosing the brain cavity is not thicker than is the rule among European men of today. Keith infers that in point of size the brain of the ancient Galilean fell only a little short of that of the average Englishman of today, whose brain volume measures about 1,480 c.c.

BELGIUM

(From Our Regular Correspondent)

Sept. 5, 1925.

Congress of Ophthalmology

The eighth congress of the Société française d'ophtalmologie was recently held in Brussels. Many foreigners were present at the meeting, among whom were Lawford of London, Bousquet of Quebec, Boulay and Saint Denis of Montreal, Angelucci of Naples and Barraquer of Barcelona. Interesting papers were presented by Morax on the etiology of trachoma, and by van Duyse on "Were Artificial Eyes Known to the Ancients?" Among other interesting communications, I will mention the following:

LOCAL VACCINATION

L. Carrère discussed experiments on animals and clinical cases showing that local vaccination on the eye by means of bouillon vaccines prepared according to the technic of Besredka gives undeniably good results. This method of preventive or curative vaccination should practically replace other modes of vaccination. Local vaccination may be employed alone in the treatment of palpebral affections in the form of an appropriate bouillon vaccine; or, in the treatment of dacryocystitis by lavages of the tear sac. Local vaccination may be employed also as an adjuvant treatment in microbic affections of the cornea.

PATHOGENESIS OF DETACHMENT OF RETINA

Weekers of Liége induced experimentally in the rabbit through cauterization of the sclera a detachment of the retina, which progressed in the same manner as idiopathic detachment in man. The anatomic and histologic examinations elucidate the mechanism of the detachment. At the site of the cauterization the sclera shows no lesion. The choroid, however, is the seat of a marked congestion. An exudate of choroidal origin raises the retina. Under the influence of its own weight, the exudate runs down and splits off the retina. The retina presents a place of least resistance at the level of its pigmentary coat, and splits off at this place with deplorable ease. The exudate coming from above accumulates at the bottom of the ocular cavity, where it undergoes degenerative changes. It persists and interposes itself after the manner of a foreign body and prevents cure of the detachment. Just as in man, we find in animals the appearance of cysts in the detached retina. These cysts are induced by the folding of the retina and by the disordered circulation that results therefrom. The anatomic examination makes it possible to analyze the process of partial recovery that takes place in spots. Moderate inflammatory manifestations having their point of departure in the choroid finally resorb the exudate under the retina. The retina regains its contact at first at a rather circumscribed spot; then the uniting process extends more closely to the adjacent retina. These observations show the method to be followed in bringing about a cure of the detachment.

TREATMENT OF DETACHMENT OF THE RETINA

Gonin of Lausanne recommended bringing about an adherence of the retina to the choroid by means of a scleral puncture followed by deep thermocauterization. This technic should be preceded by a very careful study of the lesion and a minute ophthalmoscopic examination; for the determination of the exact point at which the intervention is to take place is more important than the question of the procedure to be employed (thermocauterization, electrolysis, injection of irritant fluid, etc.). Sourdille of Nantes injects under the conjunctiva 2 or 3 c.c. of a 0.1 per cent. solution of mercuric cyanid, whereby he induces an adhesive reaction between the retina and the choroid. In recent cases he has observed 50 per cent. of recoveries and amelioration in old cases.

VIENNA

(From Our Regular Correspondent)

Sept. 9, 1925.

Age Distribution of the Population of Austria

Toward the end of 1924, the population of Austria was 6,535,363, 52 per cent. of which, or 3,419,102, was under 30 years of age. The various ages (with the exception of four) up to 30 are represented with surprising regularity by something more than 100,000 persons each. Age 30 is represented by fewer than 100,000 nor is this number attained by any age after 30. Ages 4 to 7, inclusive, which reflect war conditions more sharply, fall way below the average, age 5 being represented by only 66,351 and age 7 by only 87,206. The small representation of age 7 is explained when we recall that their birth year fell in 1917-1918. With reference to sex distribution, in 1900 in Austria, as in other European states, the excess of males over females prevailing in the lower ages was in sharp contrast to the excess of females over males that marked the higher age groups. This manifestation, especially in the middle age groups, was much accentuated as the result of the war. Up to age 21 there is an excess of males over females; from then on there is an increasing excess of females over males, which reaches its maximum for ages 30 to 39, in which the excess of women amounts to 75,349. These ages correspond to the birth years 1884 to 1893, which furnished the largest proportion of soldiers during the war. The relative proportion of males and females is almost identical in the cities and in the rural sections.

Disinfection Regulations in Vienna

The municipal public health bureau recently established new regulations pertaining to disinfection after infectious diseases and for prophylactic purposes. These rules are binding on all sanitary organizations. The main emphasis is placed on routine disinfection at the bedside. The experience of the war has not been forgotten that washing of walls, floors and furniture with disinfecting solutions is more efficacious than the use of gases; but in cases of anthrax, smallpox, plague and glanders the disinfection of rooms with gaseous substances also is required. The best chemical for washing surfaces is a 1 per cent. solution of phenol (carbolic acid); also formaldehyd soaps are good. Mercuric chlorid is used less than formerly. For the disinfection of clothing, compound solution of cresol, 2 per cent., is required. The elimination of insects and vermin is important, especially in rooms where foodstuffs are kept. Books and documents must likewise be disinfected, particularly after cases of tuberculosis. The sputum and excrement of tuberculous patients must be well mixed with compound solution of cresol, from 2 to 5 per cent., before they are emptied into the drains; this applies to institutions as well as to private patients. Weight is attached also to terminal disinfection of private rooms in order to make them safe for other members of the family. Disinfectants, to be effective, must not be used in too weak solutions. A 2 per cent. solution of formaldehyd is effectiv The formaldehyds have a more agreeable odor than other chemicals, but they are more expensive and no better. Phenols, xylenes and toluenes mixed with chlorin are not much more effective. In surgery, the tendency is again to rely not so much on asepsis as on antisepsis. This is because many substances with an almost specific action have been found; for instance, certain dyes of which trypaflavine kills streptococci; rivanol combats staphylococci, and vuzin gets at the deeper tissues. Alcohol has been overestimated as a disinfectant, as it kills only spore-free types of microorganisms and is effective only in certain concentrations (70 per cent.). Absolute alcohol and a weak solution of alcohol are alike practically useless. Moreover, instruments and tissues must remain for some time in alcohol before they become sterile. Tincture of iodin is very useful, although in laboratory experiments its effect is not so good as in vivo. The development of anaerobic bacteria is stayed by iodin. Disinfection in private dwellings is usually done at municipal expense, when a physician has reported a case of a notifiable disease (scarlet fever, smallpox, diphtheria, plague, glanders, anthrax, cholera, typhus, typhoid, erysipelas). In other cases of infectious disease the municipality may require the individual family to bear the expense. Measles is not a notifiable disease.

Phases of Child Welfare Work in Vienna

Vienna is spending large sums of money in caring for hildren who either cannot be given adequate care by relatives r who, for some reason, have to be admitted to institutions. For the purpose of centralizing control of all phases of child welfare, a unique institute has been created. The headquarters of the institute are in one of the most populous sections of the city. With respect to architectural design and construction, together with sanitary arrangements, the building incorporates many modern features. It contains: (1) a receiving home for children who are to be transferred elsewhere; (2) a pavilion, with a dispensary on the ground floor and a ward for infectious diseases on the second floor; (3) a dissecting room, and (4) nurses' quarters. Children who are referred to the institute by a social welfare worker, a welfare institute, the police department or various other organizations are classed as coming from "suspected sources," and are therefore given a medical examination as soon as admitted. If found to be in need of hospital treatment, they are sent to the adjacent children's hospital; otherwise they are turned over to the nurse in charge of baths. They are then quarantined in the children's home for from sixteen to twenty-one days. In the meantime, the clothing undergoes a thorough disinfection. The institute has accommodation for sixty infants with twelve nurses; forty-eight children under 6 years of age, and 108 children from 6 to 14 years old, a total of 228 persons. All the wards are arranged according to the cubicle system, with five children in each cubicle. The cubicles are separated by glass partitions, and each cubicle has a separate kitchenette, its own bathroom and toilet, and its separate closets for soiled and fresh linen, so that in case of illness in one cubicle strict isolation is possible. There are also rest rooms, and adequate gas, water and electrical equipment. For children with serious illness there is a special ward containing eight entirely separate cubicles, each designed for two children. Then there are, in one large ward, twelve beds isolated by glass partitions, which affords a clear survey of the ward and makes control easy. There are three laboratories and a school dental clinic associated with the institute, although they have no organic connection. Much thought and care have been been given to facilities for isolation of any department in the building. The many separate staircases make possible immediate exclusion of every group of cubicles and every room from all contact with the outside in case infectious disease suddenly develops. In the pathologic department there are pens for experimental animals, together with rooms for operations on animals and for the dissection of animals. A large playground for the children is likewise provided. After the period of quarantine, the children who are healthy but in need of welfare treatment are sent to a home for convalescents, to the main children's home or orphanage, to an institution in the rural sections, or to foster parents; or, if they are ill, they are sent to a children's hospital.

The advantages of this system are: (1) Money appropriated and contributed for philanthropic purposes is no longer partially squandered; (2) exact control of all children belonging to this class is possible; (3) more rapid distribution of the children is effected, and (4) medical control by reliable specialists takes the place of haphazard control of former days. The building necessitated about the same expenditure of money as is usually figured ($1,300 per bed). The plans for the building were drawn up by a committee, with which leading pediatricians and hygienists were associated in an advisory capacity.

Losses of the Vienna Faculty of Medicine

During recent weeks, the medical faculty of the University of Vienna has lost three prominent investigators. Dr. Bum, the orthopedic surgeon, has died. He was the pioneer of massage in surgical affections, which he introduced in Vienna. Also intraneural injections of alcohol in the treatment of sciatica were first recommended by him, and at the time he was holding courses for physicians his lectures were attended by students from all parts of the world. Two other men have received calls to important positions elsewhere: Prof. Béla Schick, the pediatrician, and Professor Eppinger, an investigator in the field of metabolism. Professor Schick's researches on the chemistry of the blood and blood serum in infectious diseases of childhood, more particularly in diphtheria and scarlet fever, have carried his name to distant lands. The Schick test is universally known. He has accepted a call to become the director of a large children's hospital in North America and will sever his connection with the Pirquet clinic. Professor Eppinger has been called to the German University of Prague. He has devoted himself particularly to researches on the functions of the digestive tract, the kidney and the circulatory organs. At the Wenckebach clinic he has had an excellent opportunity to carry out comprehensive studies in this field, and he has developed distinguished ability in this branch. Efforts have been made to hold these men in Vienna, but without success.

An Outbreak of Typhoid in Vienna

Owing to the excellent drinking water of Vienna, typhoid fever has become almost a thing of the past. It happens occasionally that sporadic cases are brought in, but through the action of the health authorities they are soon eliminated. This year, a large number of our citizens spent part of the summer in Italy and brought malaria and typhoid back with them. A short time ago, the death of a child and, soon afterward, the deaths of two adults were announced from a suburb of Vienna, the diagnosis having been "gastric fever." The necropsy findings, however, revealed typhoid, which shows that the medical attention was not quite what it should have been. As a partial excuse it may be said that typhoid has become so rare that many practitioners have ceased to think about it. In the outbreak mentioned, which thus far has been fatal in four out of about twenty-five cases, the necessary isolation measures were not taken at first, but that has been remedied and further progress of the disease seems unlikely. Typhoid about fifty years ago claimed more than 2,000 victims annually in Vienna, whereas now it causes a great sensation if two dozen persons contract it.

BERLIN

(*From Our Regular Correspondent*)

Sept. 5, 1925.

Suicide in Germany

During the war, suicide in Germany decreased, but in 1922 the incidence rose again to 21.9 per hundred thousand population. In 1923, there were 13,228 cases of suicide, or 21.4 per hundred thousand, which is 91 per cent. of the rate for 1913 (23.5).

Previous to the war, the percentage of suicide—both sexes together—showed a slow steady increase, but with the opening of the war and up to 1918 there was a decrease. After the war, the rate rose rapidly and has recently hovered around 21 per hundred thousand population. The changes differentiated according to sex are even more significant than the fluctuations of the general rate. The incidence of suicide among men, which is considerably higher than the rate for women and therefore has a decisive effect on the fluctuations of the general rate, was about 12 per cent. lower following the war than the rate for 1891. Suicide among women, on the other hand, was increasing before and during the war, and has continued to increase since, so that the rate for women has increased from 25 per cent. up to 45 per cent. of the rate for men. The changes in the social status of women and the fact that they are assuming more and more the cares and duties of labor and industry may be one reason for this increase. However, since the war the increased incidence of suicide among women has affected solely those more than 60 years old. Among men, only those more than 70 years old show increased incidence, which is doubtless because after the war retired business men who were dependent on their property earnings lost a large part of their holdings through the inflation of the mark.

Comparison of the suicide rate of Germany with the rates of various cities shows that towns and cities with more than 15,000 population have higher rates than that of Germany. In general, the suicide rate rises with the size of the town—only in the cities with from 50,000 to 100,000 population were the rates lower than in the smaller towns.

As before the war, if we leave out of consideration the largest cities, the provinces or states having at present the largest suicide rates are: Saxony, Thuringia, Brunswick, Anhalt and Schleswig-Holstein. Of the largest cities, along with Berlin, the principal cities of Saxony, and the seaport cities in the northwest, show the highest suicide rates. Of the states and provinces, Posen-West Prussia, Upper Silesia and Westphalia have the lowest incidence, and of the large urban centers, the industrial cities of Rhenish Prussia and Westphalia.

The differences in the suicide rates of various countries are due chiefly to variations in social and economic conditions, peculiar traits of national character, and varying religious and cultural conditions. Also the mode of collecting statistics in the various countries has some bearing on the subject.

Since the war, so far as appears from available statistics, Denmark is the only country in which the suicide rate has decreased markedly.

The Vital Statistics for Hamburg

The total number of marriages in the city-state of Hamburg in 1924 was 9,918, which is a decrease of 3,766 over the year 1923 (13,684). Compared, however, with 1913, when the number of marriages was 9,362, it marks an increase of 556. Since 1920, there had been a marked decrease in the birth rate, but in 1924 no further decrease was noted. For 1924, the total number of births (including stillbirths) was 16,843, as against 16,641 in 1923. Among the births were thirty foundlings; of the twenty-six infants found dead, six were living births, and twenty were stillbirths. There were 172 twins and two triplets. The number of illegitimate children was 1,796, or 10.66 per cent. of all births, as compared with 13.60 per cent., which was the average for the ten years immediately preceding the war (1904-1913). The number of stillbirths was 575, or 3.41 per cent. of the total, as against 3.27 per cent. in the same ten year period. The total mortality was 13,150 (exclusive of stillbirths), as compared with 14,129 in 1923 and 13,812 in 1913. The mortality rate of 11.47 per thousand population is the lowest ever recorded. Also the infant mortality rate is the lowest on record, being 88.33 per thousand living births, as against 96.13 in 1923; 147.69, the average mortality for the period 1904-1913, and 178.39, the average mortality for the period 1875-1924. The excess of living births over deaths, on the basis of 1,000 population, was 1.64 in 1923 and 2.72 in 1924, which is still very low as compared with 9.55 for the period 1904-1913 and 8.26 for the period 1875-1924.

PRAGUE

(*From Our Regular Correspondent*)

Sept. 1, 1925.

Death of Kukula

Czech medicine has suffered a second heavy loss through the death of a leader. After Prof. V. Janovsky, whose death was reported recently, Dr. Otakar Kukula, professor of surgery of the Prague Czech Medical Faculty, died, August 11. Kukula came from a medical family. His grandfather was a well known surgeon and his father owned a private surgical hospital in Jicin, northern Bohemia, where his son was born in 1867. Kukula obtained his degree in medicine at the Prague Czech University in 1890. He then went to Vienna, where he studied under Prof. E. Albert. In 1894 he became assistant at the Czech surgical clinic in Prague, and in 1897 lecturer in surgery in the surgical clinic of the Czech Medical Faculty in Prague. With this he was connected until he died. As a young surgeon he spent some months in New York and Chicago hospitals. He visited also surgical hospitals in Russia. In 1901 he became assistant professor and in 1904, after the death of his chief, the head of the surgical clinic. The early work of Professor Kukula was in urology. In 1894 he published a monograph on calculosis of the bladder, in which he gave the chemical composition of bladder stones as well as their microscopic structure. In 1897 he published a study on the rôle of *Bacillus pyocyaneus* in urinary infections. Later he devoted his chief interest to surgery of the peritoneal cavity. He published a number of studies on surgery of the mesentery and of the stomach, but his chief contribution was the explanation of the causes of death in intestinal occlusion. The experimental studies underlying this work were made in the institutes of Professor Horbaczewsky in Prague and of Professor Necki in Petrograd. Kukula produced experimental intestinal occlusions in dogs, extracted chemically the products of the decomposed intestinal contents, and studied the effects of these substances on experimental animals. Later he used extracts from the intestinal contents of clinical cases of intestinal occlusion in human patients. He demonstrated that these substances produced collapse, vomiting, cramps and other symptoms accompanying the clinical picture of intestinal occlusion in man. His papers on this work introduced Kukula to the scientific world and qualified him for the position of chief of the Prague surgical clinic. Another series of his papers is concerned with surgery of the kidneys in relation to the kidney function test. Other articles deal with surgery of the brain, bones and joints, and [illegible] operations on the muscles and nerves. The total [illegible] published in Czech, German and French.

to forty. In 1913 he published a monograph on the pathology and therapy of the appendix; in 1921, another one on the pathology and therapy of intestinal occlusion. Just before his death he sent to print his large monograph on diseases of the esophagus and stomach. For the current academic year he served as rector of the Czech University in Prague.

Through the death of Professor Kukula, Czech medicine loses not only a surgeon of unusual skill and a scientific investigator of international reputation, but also an excellent teacher. Lecturing was Professor Kukula's favorite task, and he never missed an occasion to show something of interest to his students. This, and his pleasing personality, made him one of the most popular professors of the Czech Medical Faculty. But his energy was not exhausted by his many sided professional activities. He was a pillar of social life and developed the automobile club in Prague. For a whole year he was able to resist the disease that fell on him unexpectedly, but ultimately he succumbed to heart failure.

A New Periodical

Recently the first number of a new Czech monthly periodical appeared in Prague under the name of *Nutrition*. It is devoted to the popularization of scientific discoveries which have a bearing on the economic and hygienic aspects of nutrition of the individual, family and nation. The editor is Dr. Charles Driml, an authority on popular health education. Dr. Driml received his hygienic education at the Johns Hopkins School of Hygiene, and developed the bureau for popular health education in the ministry of health. The first number contains articles on nutrition as a national economic problem in Czechoslovakia, the nutrition of the pregnant woman, and food control as a means for improving the nutrition of the people. The publication of this periodical seems to be another important step toward scientific management of nutrition in Czechoslovakia, a movement inaugurated when the president of the republic made his gift for the erection of the institute for research in nutrition, which is to be connected with the state institute of hygiene in Prague.

Lowered Oxygen Tension and Lung Regeneration

Dr. E. Babák, professor of physiology at the Brno Medical Faculty, at a meeting of the biologic society in Brno, presented the results of his researches on the power of adaptation of lung tissue of animals. Professor Babák put mice into a mixture of 9 per cent. oxygen and 91 per cent. nitrogen under normal atmospheric pressure. While the mice at the beginning showed irritation, they became accustomed to the decreased ogygen content and became quite normal. The lung tissue of the animals was examined under the microscope at different intervals, and as early as eight hours after the beginning of the experiment new capillaries appeared in the walls of alveoli, to which new endothelial cells attached themselves so that new alveoli were formed. In three weeks after the onset of the experiment the microscopic picture of the lung tissue was quite normal, but comparison with the lungs of control animals showed that grossly the lungs of animals exposed to an atmosphere with a lower content of oxygen increased both in size and in weight. The mice that adapted themselves to an atmosphere with lowered oxygen content were able to adapt themselves even further to a medium in which the partial tension of oxygen was so lowered that normal animals when put into the atmosphere soon died. This is the first experiment showing that, in animals, adaptation to a lowered oxygen content results in hypertrophy of the lung tissue so as to insure the necessary supply of oxygen. The application of the results of these experiments, when confirmed also for human physiology, is obvious. The stimulus of lowered oxygen tension could be used for initiating regeneration of lung tissue when some parts of it had been destroyed by pathologic processes. Professor Babák, while suggesting these avenues for clinical research, was far from making final deductions, but is awaiting the results of clinical experiments.

Contribution to Medical History

Prof. C. Zibrt's book on the old Bohemian anatomy and physiology is of wide interest to students of medical history. The book is an anthology of old Bohemian manuscripts. It appears that medicine as an art was highly developed in Bohemia in the fifteenth century, from which time dates the foundation of Prague University with the independent medical school. Medical literature is abundant in the sixteenth century, but becomes scarce in the following centuries, which witnessed the political downfall of the nation. The rebirth of the nation in the eighteenth and nineteenth centuries is marked by the appearance again of prominent medical workers in Bohemia, the outstanding figure of whom is J. E. Purkinje. It is interesting to read the personal hygiene that was written by the personal physicians to the old kings. The oldest complete personal hygiene contained in the book was written by M. Havel to the founder of the Prague University, Charles IV (1316-1378). A similar document, written by J. A. Comenius (1592-1670), the pedagogist, reveals his methods of popular health education. All the documents show how well developed was Czech medical terminology even at that time. While many things appear ridiculous in the light of modern medical knowledge, other things that were arrived at through experience have stood the test of time and have found explanation in modern experimental medicine. There are many old traces of organotherapy, dietetics and theories on the spread of infectious diseases. The book reprints in full the manuscript of Matous Dacicky's "On the Wonderful Fabric and Composition of the Human Body," written in 1574, which is the most complete document of its kind in old Czech medical literature.

Vacancies in Army Medical Service

A discussion is going on in the medical press on regulation of the medical service in the Czechoslovak army. This has become an acute problem because more than one third of the positions in the army medical service are vacant, especially in the lower grades. This state of affairs is especially alarming for the future when the present experienced army surgeons die. This condition prevails in spite of the general overproduction of young physicians in this country. An attempt was made to attract young physicians into the army by granting scholarships to medical students in the last two years, under the condition that after graduation they serve in the army for a number of years. Even this arrangement did not bring the results that were expected. In order to maintain the medical service in the army it was necessary to engage civilian physicians under contract. A proposal was brought forward to organize the medical service in the army exclusively on this basis and to do away with the army medical service as such. This proposal provoked strong resistance on the part of experts in army sanitation, who maintain that the army medical service is a specialty that should be recognized just as any other type of special medical service. The proper discharge of army medical service can be performed only by those who have made it their life work and who have prepared themselves for it by special education and experience. The only remedy they see for the present unsatisfactory state of affairs is in better remuneration of army surgeons so that they would not be compelled to depend to a considerable degree on private practice, as is the case at present. If the modern army is to be a school of life for the growing male population, instruction in healthy living is to be the chief task of the army physician.

Deaths

Henry Rose Carter ⊕ Assistant Surgeon General, U. S. Public Health Service, died at his home in Washington, D. C., September 14, aged 73. In 1900 he published a paper recording observations made in 1898 on the interval between infecting and secondary cases of yellow fever. Dr. Walter Reed, impressed by these observations, was led by them to the idea of an intermediate host, the mosquito, as the important factor in the spread of the disease, later established by the Yellow Fever Commission.

Dr. Carter graduated from the University of Virginia in civil engineering in 1873 and from the University of Maryland School of Medicine, Baltimore, in 1879. He then entered the United States Public Health Service, continuing constantly with that organization until his death. For many years he was closely associated with the control of yellow fever and malaria in the Southern states, publishing his first paper on "Yellow Fever Mortality in Havana" in 1900. He inaugurated a quarantine system in Cuba in 1899, and from 1904 to 1909 was director of hospitals in the Panama Canal Zone. His work on yellow fever was so striking that Sir Ronald Ross recommended him for the Nobel prize in medicine in 1904, and further recognition was given to him when he was commissioned Assistant Surgeon General by a special act of Congress in 1915. His papers previous to 1915 were devoted largely to yellow fever. In 1914 he turned his attention to malaria, and published valuable observations over several years. Dr. Carter went to Central and South America as a member of the Rockefeller Foundation Yellow Fever Commission in 1916; was in charge of malaria work for the Public Health Service, 1917-1918; was sanitary adviser to the Peruvian government, 1920-1921, and had been a member of the Yellow Fever Commission of the International Health Board since 1920. He was a clear analyst and a practical thinker in the field of preventive medicine; for almost half a century he lent valuable assistance to the governments of the world in the control of tropical diseases. In *Hygeia* for January and February, 1925, he recorded personal experiences in such work, giving a true picture of the romance of preventive medicine.

HENRY ROSE CARTER, M.D., 1852-1925

Roland Edward Skeel ⊕ Los Angeles; University of Michigan Medical School, Ann Arbor, 1890; member of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons (president, 1921-1922); member of the Los Angeles Obstetrical Society and the Los Angeles Surgical Society; dean, 1902-1910, and professor of gynecology, 1910-1911, Cleveland College of Physicians and Surgeons; associate clinical professor of gynecology, Western Reserve University School of Medicine, 1911-1920; formerly on the staffs of the Cleveland City, Lutheran, Lakewood and St. Luke's hospitals; served in the M. C., U. S. Army, during the World War; aged 56; died, September 4, at Covena, Calif.

George Alson Suffa ⊕ Boston; State University of Iowa College of Homeopathic Medicine, Iowa City, 1888; Hahnemann Medical College and Hospital of Philadelphia, 1889; member of the American Academy of Ophthalmology and Oto-Laryngology; formerly on the staffs of the Westboro (Mass.) Insane Hospital and the Massachusetts Homeopathic Hospital; aged 68; died, September 6.

Oliver Tydings ⊕ Chicago; University of Maryland School of Medicine, Baltimore, 1877; member of the American Academy of Ophthalmology and Oto-Laryngology and the Chicago Ophthalmological Society; on the staff of the John B. Murphy Hospital; aged 71; died, September 12, of cerebral hemorrhage.

William Clifford Gardner ⊕ Louisville, Ky.; George Washington University Medical School, Washington, D. C., 1919; formerly on the staff of the Methodist Hospital, Pikeville; aged 35; died, September 10, at the SS. Mary and Elizabeth Hospital, of peritonitis, following an operation.

Lewis Robert Monday, Richland, Mo.; Washington University School of Medicine, St. Louis, 1904; member of the Missouri State Medical Association; served in the M. C., U. S. Army, during the World War; aged 53; died, August 16, following a long illness.

Robert E. L. Flippen, Pilot Mountain, N. C.; Baltimore Medical College, 1892; member of the Medical Society of the State of North Carolina; past president of the Surry County Medical Society; member of the county board of health; aged 54; died, September 1.

James Taylor, Jr. ⊕ Worcester, Mass.; Medical School of Harvard University, Boston, 1900; specialized in ophthalmology, otology, laryngology and rhinology; aged 56; died. September 2, at Portland, Maine, following an operation.

George Thomas Divers ⊕ Stuart, Va.; University College of Medicine, Richmond, 1909; served in the M. C., U. S. Army, during the World War; on the staff of St. Martin's Hospital; aged 44; died August 29, of angina pectoris.

Herbert Kenning, Painesville, Ohio; Detroit College of Medicine and Surgery, 1886; member of the Ohio State Medical Association; for six years county health commissioner; aged 63; died, August 26, at Cheboygan, Mich.

Carlton Myron Cook ⊕ Baltimore; Baltimore Medical College, 1893; for many years associate professor of obstetrics at his alma mater; formerly on the staff of the Maryland General Hospital; aged 65; died, September 8.

Eugene Pressley Cason, Talladega, Ala.; University of Alabama School of Medicine, Tuscaloosa, 1890; member of the Medical Association of the State of Alabama; aged 58; was accidently shot and killed, September 3.

Walter Amazia Domer, Wabash, Ind.; University of Illinois College of Medicine, Chicago, 1901; member of the Indiana State Medical Association; aged 52; died in August, at a sanatorium in Indianapolis.

Robert Jackson Yates, Alexandria, Va.; George Washington University Medical School, Washington, D. C., 1907; member of the Medical Society of Virginia; aged 61; died, July 8, of chronic nephritis.

John Francis O'Connor, Worcester, Mass.; College of Physicians and Surgeons, Baltimore, 1896; member of the Massachusetts Medical Society; aged 57; died, August 1, of carcinoma of the mouth.

Frank B. Teague, Piedmont, Ala.; Medical Department University of Tennessee, Memphis, 1880; member of the Medical Association of the State of Alabama; aged 73; died, September 3.

Stephen S. Barat ⊕ Chicago; College of Medicine and Surgery, Chicago, 1903; medical director, Public Life Insurance Company; aged 58; died, September 15, of cerebral hemorrhage.

Charles Thompson Brown ⊕ Cedar Rapids, Iowa; Chicago Homeopathic Medical College, 1896; aged 59; died suddenly, September 3, at St. Luke's Methodist Hospital, of cerebral hemorrhage.

Edmund Stowe Douglass ⊕ South Barre, Mass.; University of Vermont College of Medicine, Burlington, 1910; aged 37; died, August 29, at Holden (Mass.) District H

Farmer Hinton Letson, Decatur, Ga.; University of Georgia Medical Department, Augusta, 1902; aged 49; died, September 2, at a sanatorium in Atlanta, of heart disease.

George Henry Hahn, Newark, N. J.; Columbia University College of Physicians and Surgeon, New York, 1902; member of the school board; aged 46; died, September 3.

Edward W. Neal, Goose Creek, Texas; Central University of Medicine and Science, Jersey City, 1900; aged 56; died, September 3, at Lynchburg, of heart disease.

Alfred H. Bays, Woodland, Miss.; University of Alabama School of Medicine, Tuscaloosa, 1879; aged 85; died, September 4, of cerebral hemorrhage.

Benedict H. E. Edelen, Gorin, Mo.; College of Physicians and Surgeons, Chicago, 1884; aged 65; died, September 6, at a hospital in Kansas City.

Ashurst Howard Norman, Brookfield, Mo.; National University of Arts and Sciences Medical Department, 1876; aged 80; died, August 30.

Leonard T. Green, Shattuck, Okla.; University of Louisville (Ky.) School of Medicine, 1893; aged 69; died, August 18, of chronic nephritis.

Bernard W. Switzer ⊕ Lexington, Va.; College of Physicians and Surgeons, Baltimore, 1893; aged 55; died, September 2, of heart disease.

Blair Sanford Stewart, Bethany, Mo.; Northwestern Medical College, St. Joseph, 1893; aged 64; died, September 5, of paralysis agitans.

Asbury B. McTeer, St. George, S. C.; Meharry Medical College, Nashville, Tenn., 1893; aged 61; died, September 1, of heart disease.

Edward R. Stone ⊕ Philadelphia; Jefferson Medical College of Philadelphia, 1872; aged 74; died, September 9, of heart disease.

Theodore F. Wood ⊕ Angola, Ind.; University of Wooster Medical Department, Cleveland, 1869; aged 85; died, August 27.

Clifford J. Sawyer, Laramie, Wyo.; College of Physicians and Surgeons of Indiana, Indianapolis, 1877; aged 71; died, August 30.

Thaddeus Burritt Kent, Marion, Iowa; Rush Medical College, Chicago, 1884; aged 76; died recently, following a long illness.

Frederick William Maercklein ⊕ Oakes, N. D.; Milwaukee Medical College, 1897; aged 50; died, September 4.

Cyrus M. Sparkman, Cassville, Mo.; Missouri Medical College, St. Louis, 1886; aged 67; died, September 6.

E. D. Little, Union City, Tenn.; Louisville (Ky.) Medical College, 1874; aged 77; died, September 2.

J. Addison Morrett, Mechanicsburg, Pa. (licensed, Pennsylvania, 1881); aged 79; died recently.

Daniel K. Cornell, Chico, Calif.; St. Louis Medical College, 1867; aged 85; died, August 29.

Marriages

Edward John Gotthelf, Jr., Tucson, Ariz., to Mrs. Ernestyne Norris Ferguson of El Paso, Texas, July 8.

Bayard Lee Liggett, Mill Creek, W. Va., to Miss Mips Gatewood Preston Cameron of Mace, August 26.

William Charles Buchbinder, Chicago, to Miss Louise May Woolf of Highland Park, Ill., July 18.

Walter Blaine Felger, Danville, Ga., to Miss Elfrieda Thomas of Hempstead, N. Y., September 5.

James G. Bruce, Fulton, Mo., to Miss Maude MacLeod of Providence, R. I., at St. Louis, in June.

Chester Anderson Witmer to Miss Annie Laurie Walker, both of Waycross, Ga., August 12.

D. Joseph Duggan, Wakefield, Mass., to Miss Barbara E. Russell of Rutland, Vt., June 27.

Manuel G. Gichner to Miss Bertha L. Moses, both of Baltimore, August 17.

H. T. Antrim to Miss Phyllis K. Lane, both of Philadelphia, May 6.

The Propaganda for Reform

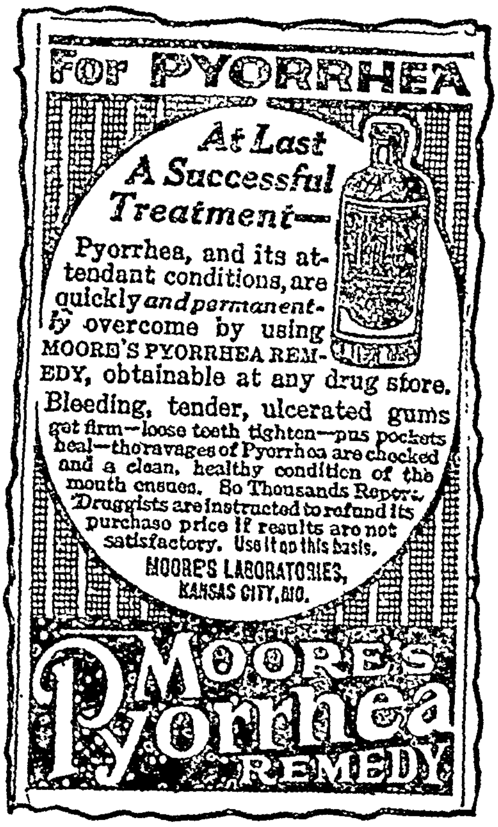
In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

THE MOORE PYORRHEA REMEDY FRAUD

The Government Closes the Mails to Another Swindle

On August 27, 1925, the government debarred from the use of the United States mails the Moreham Company, Fred Hamilton, Moore's Medicine Laboratories, Inc., and Moore's Laboratories, all of Kansas City, Mo. These various concerns had for some time been exploiting, largely on the mail-order plan, an alleged cure for pyorrhea.

On July 2, 1925, the individual and the concerns just mentioned were called on to show cause why a fraud order should not be issued against them. On July 29, J. W. Farrar, an attorney of Kansas City, Mo., and one D. E. Combs of Chicago, appeared at the office of the Solicitor of the Post Office Department at Washington in connection with the case. Combs claimed to be interested in the matter from the standpoint of having advised the various concerns in connection with their advertising.



FOR PYORRHEA

At Last A Successful Treatment—

Pyorrhea, and its attendant conditions, are quickly *and permanently* overcome by using MOORE'S PYORRHEA REMEDY, obtainable at any drug store. Bleeding, tender, ulcerated gums get firm—loose teeth tighten—pus pockets heal—the ravages of Pyorrhea are checked and a clean, healthy condition of the mouth ensues. So Thousands Report. Druggists are instructed to refund its purchase price if results are not satisfactory. Use it on this basis.

MOORE'S LABORATORIES,
KANSAS CITY, MO.

MOORE'S Pyorrhea REMEDY

A typical newspaper advertisement of the Moore's Pyorrhea Remedy fraud.

Before giving the government's case against this concern, as detailed in the memorandum to the Postmaster General of Judge Horace J. Donnelly, Solicitor of the Post Office Department, the following facts are of interest:

In April, 1922, the Bureau of Investigation of the American Medical Association had a letter written in answer to an advertisement that had appeared shortly before in the Chicago *Herald and Examiner*. The advertisement was headed in large black letters "Pyorrhea Can Now Be Cured," and sufferers from this condition were urged to send their names and addresses to "Moore's Laboratories" at Kansas City, Mo. In a few days a letter came, not from "Moore's Laboratories," but "Moore's Medicine Laboratories, Inc.," stating that a sample of "Moore's Treatment for Pyorrhea" was being sent. Accompanying this form-letter was a four-page sheet of testimonials, an order blank and a return envelope. About a month later a follow-up letter came from the Moore's

Medicine Laboratories, Inc. In this, as is usual with mail-order quackery, the price was reduced and an offer was made to send a $3 bottle for $2. No order was sent in and six months later still another letter came offering Moore's Pyorrhea Remedy for $1.

Nothing further was heard from the concern until March, 1924, at which time a circular letter was received on the stationery of "Moore's Laboratories" declaring that the concern was offering some valuable premiums to those who would send in a combination order for the Pyorrhea Remedy and Tooth Paste. It was worthy of note that the stationery of "Moore's Laboratories" and that of "Moore's Medicine Laboratories, Inc.," showed that the personnel of these concerns was the same, namely:

Dr. George F. Abrahams, president.
John J. Abrahams, treasurer.
George H. Moore, vice-president.
Dr. L. R. Smith, secretary.

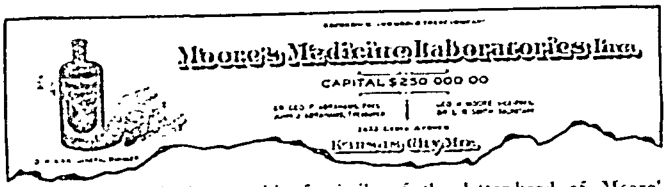
According to the same stationery both concerns were capitalized at $250,000 and both gave for references the Commerce Trust Company of Kansas City. These points will be found of interest in what follows.

Judge Donnelly in his memorandum to the Postmaster General states that after carefully reviewing all the evidence in the case he found the facts to be, in part, as follows:

> "The business of the Moreham Company, which is that of selling a so-called pyorrhea cure through the mails, was started by Mr. Fred Hamilton on July 1, 1924, as sole owner. The business is extensively advertised through the Hawthorne Advertising Agency, which is also operated by Hamilton, and through the Allen C. Smith Advertising Agency. The advertising cost has been about $300 per month. The literature used was prepared by the Smith Agency. Gross receipts are shown to be about $6,000 per annum. There are no physicians, chemists or pharmacists employed by the Moreham Company, nor are there any other employees, the entire business being handled by Mr. Hamilton.
>
> "According to the evidence, the medicine sold is prepared by 'Moore's Medicine Laboratories, Inc.,' located at the same address as the Moreham Company. The first named concern uses 1422 Lydia Street, Kansas City, Missouri, as the address on its literature, while the latter named concern uses 1420 Lydia Street, but the entrance to the above addresses is through the same door. The evidence shows that Hamilton has a small desk in the office of Moore's Medicine Laboratories, Inc. This latter concern was incorporated in 1921 under the laws of the State of Arizona, its officers being J. W. Farrar, president, George H. Moore, vice-president, L. R. Smith, who is a graduate of a veterinary school, secretary, and John Abraham, treasurer. Mr. Moore is alleged to be the discoverer of the pyorrhea medicine, as well as of another product known as 'Moore's Tooth Paste.'
>
> "In an interview between the post-office inspector and Mr. Smith of the Moore's Medicine Laboratories, Inc., the inspector was informed that the Moore's Medicine Laboratories, Inc., handles only the 'Moore's Pyorrhea Remedy' and the tooth paste, and that it sells to the wholesale drug trade. Mr. Smith claimed that the pyorrhea medicine was sold to Hamilton just as it was sold to the drug trade, that he (Hamilton) printed his own labels and that the ingredients of 'Moore's Pyorrhea Remedy' were the same as 'Moore's Pyorrhea Treatment' sold by Hamilton under the name of the Moreham Company, except that the latter is stronger and more concentrated. On his letterhead, and in his literature, Hamilton claims that his concern is the 'exclusive' distributor of the medicine. The ingredients of the medicine will be referred to more in detail later herein.
>
> "The evidence shows that the gross business of the Moore's Medicine Laboratories, Inc., is about $1,000 per month. The concern claims that it does not advertise to sell to laymen, but the evidence before me shows that the medicine is sold by the concern to customers direct through the mails."

Judge Donnelly's memorandum further shows that while "Moore's Medicine Laboratories, Inc.," and "Moore's Laboratories" claim that they had no direct connection with Hamilton and the Moreham Company, the evidence in the case contradicated this claim. The memorandum then quotes some of the extravagant and unwarranted claims made for the alleged pyorrhea remedy. The nostrum was analyzed in the Bureau of Chemistry, and the analysis is incorporated in a report submitted to Solicitor Donnelly by L. F. Kebler, M.D., chemist in charge of Special Collaborative Investigations, U. S. Department of Agriculture.

The analysis in the report shows that Moore's Pyorrhea Treatment consisted essentially of emulsified coal-tar cresol with a little pyridine or coal-tar base, emulsified with rosin soap. As Dr. Kebler's report declared, there was nothing new in the Moore mixture; all of the ingredients, their therapeutic action and value are well known to physicians generally, the nostrum would not heal a case of pyorrhea, it would not cause "receding, inflamed and bleeding gums" to become "firm and pink," it would not "tighten loose teeth," nor would it "conquer pyorrhea" by causing the germs to "just clump right up and quit the job."


Moore's Medicine Laboratories, Inc.
CAPITAL $250 000 00
Kansas City, Mo.

Greatly reduced photographic facsimile of the letter-head of Moore's Medicine Laboratories, Inc. This fraud, which has been debarred from the use of the mails gave as a reference the Commerce Trust Company.

In view of all the evidence, Judge Donnelly declared in his memorandum to the Postmaster General that it was a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises, and he, therefore, recommended that a fraud order be issued.

Correspondence

SERUM FOR INFANTILE PARALYSIS

To the Editor:—In view of the definite increase in the number of cases of infantile paralysis in the various parts of the country this summer, it may be of interest to know that serum from patients who have recovered has been used recently with several satisfactory results. A child, aged 4½ years, developed typical preparalytic symptoms; a lumbar puncture was done and spinal fluid containing 500 cells to the cubic millimeter was found. At the time of the puncture the patient had a temperature of 102, was toxic and showed the typical muscular twitchings that belong to this stage of the disease and indicate the penetration of the central nervous system by the virus. Fifteen cubic centimeters of serum from a patient who had recovered was run into the spinal canal, and immediately thereafter 50 c.c. was given intravenously. At the end of four and a half hours a second intravenous dose of 50 c.c. of the same serum was given. During the ensuing ten hours the temperature rose to 104 and dropped again to 102. Because the temperature did not come down completely, a third intravenous injection of 50 c.c. of the recovered serum was given. The child appeared to be much better within a few hours of this third dose; the temperature returned to normal and no paralysis developed.

It was my experience during the epidemic of 1916 that cases which presented a clinical picture of the severity which this one did, and also showed as many cells in the spinal fluid at that particular stage in the disease before paralysis developed, practically without exception went on to severe paralysis or death. The case that has just been cited is, of course, described only as an example and is not advanced as an argument in itself for the value of this method of treatment—obviously, one case is insufficient for this purpose.

The number of cases that I have seen respond in this way, however, to the use of large doses of serum from human patients who have recovered leads me to believe that this method holds real hope of prevention of paralysis, provided that the serum is introduced before paralysis has appeared and in sufficient quantity. The previous results reported of cases treated with the serum of patients who have recovered were never very encouraging, but this lack of success depended, I believe, on the fact that only very small quantities, 10 or 15 c.c., were used in any given case. It has been shown that the neutralizing bodies are present in human serum, but their concentration is not very great. Consequently, with this as with all serum, the quantity used must bear some relation to the concentration of the neutralizing substances, or antibody content.

The amount of serum used in the case described has been, in my experience, sufficient to prevent paralysis in a number of cases which had all the characteristics of those which would have gone on to paralysis. In other words, 15 c.c. intraspinally, with 150 or 200 c.c. intravenously in the course of from twelve to twenty-four hours, would seem to be a reasonable dose of the serum. It must be emphasized again, however, that the serum is of no value if paralysis has already appeared.

The question of obtaining the amount of 200 c.c. of human serum involves a certain amount of difficulty, but there is no reason why these difficulties should not be surmounted. It requires approximately 500 c.c., or less, of blood to yield from 220 to 250 c.c. of serum. This amount of blood is now frequently and easily obtained for transfusion purposes. There would seem to be no reason why health departments should not collect serum from patients who have recovered. If necessary, this blood could be purchased just as it is for transfusion purposes; but there is a great probability that persons who have themselves suffered from paralysis would be willing to give their blood for the purpose of preventing paralysis in some one else.

While there is at present a good deal known about the mechanism of acute poliomyelitis, it is perhaps true that not all of this information has yet been made practically applicable. There seems very good reason to believe that the diagnosis of this disease can be and should be made in the preparalytic stage. Not only in epidemic times should physicians be on the lookout for infantile paralysis. The more alert the profession becomes to the possibility of the simple gastro-intestinal upsets being actually the symptoms of onset of poliomyelitis, the better will be the chances of preventing paralysis.

Two things, therefore, are necessary for the successful prevention of paralysis by the use of serum from patients who have recovered. First of all, a preparalytic diagnosis must be made, and, secondly, a sufficient amount of serum must be used both intraspinally and intravenously.

In advocating the use of the serum of patients who have recovered, it is necessary to make reference to the serum prepared by E. C. Rosenow from horses inoculated with a special streptococcus isolated by him from patients with infantile paralysis. This serum does not neutralize a virus which is capable of producing the experimental disease in monkeys: nor has any one ever produced infantile paralysis in monkeys with any streptococcus. In previous communications I have drawn attention to the possibility of danger connected with the intraspinal use of a foreign serum in acute poliomyelitis. In cerebrospinal meningitis in which the lesion does not involve the cord, the possibility of reaction to the presence of a foreign serum may be fraught with less danger than in the case of poliomyelitis in which the lesion involves the anterior horn cells. In this instance a very slight increase in hyperemia may cause the destruction of the cells. George Draper, M.D., New York.

SCARLET FEVER PREPARATIONS

To the Editor:—Since we described a skin test for susceptibility to scarlet fever and preventive immunization of susceptible persons with the sterile toxin, and the corresponding antitoxin for therapeutic and prophylactic treatment, various commercial biologic concerns have been producing the toxin. Some have also been distributing serums under the label of "Scarlet Fever Streptococcus Antitoxin."

On inquiry and testing, we found that much of the toxin was made from broth to which considerable amounts of horse blood had been added, thus introducing, quite unnecessarily, the possibility of sensitizing to horse serum during the course of preventive immunization with the toxin. Some preparations of the toxin were not standardized with sufficient accuracy to give dependable results; and most of the toxin was put out in doses too small to produce satisfactory immunization in many susceptible persons.

Much of the serum sold as scarlet fever streptococcus antitoxin was put out in the unconcentrated and unrefined state. We learned that some commercial firms were standardizing scarlet fever antitoxin by a modification of the method which we described and on which we had based the minimum potency requirement and the prophylactic and therapeutic dosage. This modification is such that some serums, not sufficiently potent to meet the minimum requirement by the original test, may be passed by the modified test.

Proper preparation, accurate standardization, and adequate dosage are essential to the successful use of both the toxin and the antitoxin. To insure these, so far as possible, we applied for patents on the materials. Our claims have been granted by the United States government, and the administration of the patents has been entrusted to the Scarlet Fever Committee, which has been organized and incorporated for this purpose. We are to receive no royalties from the committee and no consideration for turning the patents over to the committee other than the assurance that the products licensed under the patents will be made and tested by specified methods, and put out in the doses that seem most satisfactory in the present state of our knowledge. This arrangement will also facilitate the introduction of improvements as they are developed.

We wish to make it clear that we are not in a position to recommend the use of preparations not licensed by the Scarlet Fever Committee, even though such preparations bear our name on the label, or the accompanying literature claims that they are made according to our methods. All preparations licensed by the Scarlet Fever Committee will be so labeled. George F. Dick, M.D.,
Gladys Henry Dick, M.D., Chicago.

Dust Explosion.—According to the U. S. Bureau of Chemistry, more than 22,000 establishments in this country are manufacturing dusty products such as starch, cocoa and spice, or producing dust during the manufacture of their products. The hazard of dust explosion exists in these plants and in warehouses where large quantities of dusty products are handled. There were forty-five lives lost in the last year, twenty-eight employees injured and about $3,000,000 worth of property destroyed in dust explosions and fires resulting from them. The American Chemical Society in announcing results of investigation by the Bureau of Chemistry reported, September 6, that practically all combustible dust and some not generally considered combustible will explode when mixed under favorable conditions with the proper proportion of air and ignited by a flame or spark. It was said that no record of a spontaneous dust explosion has ever been obtained and that some spark or flame or other source of ignition must be present to ignite the dust. The Bureau of Chemistry announced that it would make tests of samples of dust in plants for owners to determine the explosibility.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

WATER GAS — CARBON MONOXID POISONING

To the Editor:—Kindly refer me to any literature regarding poisoning to a person working in a gas plant where illuminating gas is made, using the "water gas" process. Is carbon monoxid poisoning possible from such a source? If so, how soon would it show up? What are the symptoms, duration, after-results and treatment?

T. A. R., M.D., Springfield, Ill.

Answer.—Water gas (producer gas) is used to a great extent in the larger cities of the United States, whereas in England the sale of this gas to the consuming public has been looked on with disfavor because of its toxicity; it contains mainly hydrogen and carbon monoxid. Poisonings from such illuminating gas are due to carbon monoxid. This has been demonstrated by observers (The Journal, March 8, 1913, p. 737) by the presence of carbon monoxid in the blood. The literature on carbon monoxid poisoning has grown enormously in the last ten years, so that space does not permit the discussion of the toxicology and treatment.

The United States Public Health Service has published two excellent reports on carbon monoxid which may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C.:

Sayers, R. R., and Yant, W. P.: The Elimination of Carbon Monoxide from Blood, by Treatment with Air, with Oxygen, and with a Mixture of Carbon Dioxide and Oxygen, 1923, price, 5 cents.

Sayers, R. R., and Davenport, Sara J.: Carbon Monoxide Literature; forty-four pages of discussion and an extensive bibliography; price, 10 cents.

These reprints may also be obtained (with additional literature) through the A. M. A. Package Library Service, 535 North Dearborn Street, Chicago.

HYGROMETERS FOR STATIC MACHINES

To the Editor:—What is the chemical that is used to put on the indicator in a static machine to tell when there is considerable moisture in the machine? The card turns red, I believe, when there is much moisture in the atmosphere.

G. A. Foote, M.D., Grenville, N. M.

Answer.—Practically the only moisture indicating devices used in static machines have been the horsehair hygrometers or similar instruments. The general practice now seems to be not to use such indicators, but to keep a liberal supply of anhydrous calcium chlorid (the container should be covered with gauze) or concentrated sulphuric acid in the machines at all times, to remove excess moisture; ordinary commercial lye, in open dishes, has also been reported as satisfactory. These should be renewed frequently, as judged by appearance, and by the operating efficiency of the machine.

Paper hygrometers are made by saturating white blotting paper with a liquid generally containing cobalt chlorid with other substances; the paper is then hung up to dry. The following formula is taken from Henley's Twentieth Century Recipes and Processes (1922 edition revised, p. 402):

Cobalt chlorid	25	gm.
Sodium chlorid	12.5	gm.
Calcium chlorid	4	gm.
Acacia	6	gm.
Water	75	c.c.

The amount of moisture in the atmosphere is indicated roughly by the changing color of the impregnated paper, as follows:

Rose red	Rain
Pale red	Very moist
Bluish red	Moist
Lavender blue	Nearly dry
Blue	Very dry

THE BACTERIOPHAGE

To the Editor:—From the standpoint of the practicing physician, what is the present status of d'Herelle's bacteriophage? That is, is the discovery still in an experimental stage, or has sufficient clinical usage developed to regard it as a distinct advance in medical practice? In what diseases to date has the bacteriophage treatment been successfully applied? Has any work been done along this line, say in [illegible] and in tuberculosis, with clinical results sufficiently encouraging to warrant any predictions as to future success? In cancer? Is there any connection between bacteriophage treatment and the various auto-inoculation procedures suggested (which seem to have limited vogue today)?

J. B. H. W., Blanchester, Ohio.

Answer.—The use of bacteriophage in treatment is still wholly in the experimental stage. It cannot be said that there is any conclusive evidence at hand to show the value of bacteriophage treatment in any disease, and no predictions are warranted. There is no obvious relation between bacteriophage treatment and so-called auto-inoculation.

AZOOSPERMATISM

To the Editor:—I am suffering from azoospermatism. Is there any known remedy for such an ailment? If there is please describe it. Please omit name and address.

M.D., P. I.

Answer.—Some cases of azoospermatism are due to obstruction in the genital tract. When due to this cause, a small number may be rendered fertile by making an anastomosis between the vas deferens and a part of the epididymis to the testicular side of the obstruction.

Cases due to absence of both testes or failure of the testes to produce spermatozoa are not amenable to treatment.

COLLODAURUM

To the Editor:—I am enclosing a letter I received of a cure for cancer. Kindly give me what information you have concerning Collodaurum.

E. M. Wilson, M.D., Lima, Ohio.

Answer.—From the circular matter that is sent out for Collodaurum by the Ideal Skin-Suture Material Company, Two Rivers, Wis. (which acts as distributor for the Kahlenberg-Klaus Company, Two Rivers, Wis.), it appears that this is essentially the same as the product formerly marketed as "Colloidal Gold." The "colloidal gold" of the Kahlenberg-Klaus Company was reported on by the Council on Pharmacy and Chemistry (The Journal, Jan. 31, 1925, p. 387). The Council reported that the manufacturer of "colloidal gold" referred to a publication by Dr. E. H. Ochsner as evidence for the claim that the remedy has proved far superior to the roentgen ray and radium in the treatment of inoperable cases of cancer and also as a postoperative treatment. The Council further reported that an examination of this evidence shows that until more critically studied cases supported by microscopic examination of the tissues are reported in which there has been demonstrable retrogression or disappearance of the tumors, there is no reason for believing that "Colloidal Gold" offers anything more in the treatment of carcinoma than do the other colloidal preparations that have preceded it.

COMPATIBILITY OF CODEIN PHOSPHATE AND SODIUM BROMID IN SOLUTION

To the Editor:—Please let me know whether codein phosphate and sodium bromid are incompatible in solution.

G. T. C., M.D., Salt Lake City.

Answer.—Codein phosphate and sodium bromid are both soluble in water; codein hydrobromid, according to the literature, is soluble about 1 part in 80 parts of water. The A. M. A. Chemical Laboratory reports that a solution containing codein phosphate, 2.5 per cent., and sodium bromid, 2.5 per cent., was allowed to stand several days with no apparent physical change; hence in these concentrations the two products appear to be compatible. Another solution was prepared containing codein phosphate, 2.5 per cent. (same concentration as in the previous test) and sodium bromid, 12.5 per cent. (five times stronger than in the previous test). The solution was allowed to stand over night. A white crystalline precipitate was produced which formed an almost solid mass in the test tube. Tests indicated that the precipitate was codein hydrobromid. It appears, therefore, that codein phosphate is not compatible with sodium bromid solutions, except when the latter is in relatively low concentration.

In a solution containing codein phosphate, 2.5 per cent., and sodium chlorid, 20 per cent., no precipitate was produced, which indicates that the incompatibility reported in the foregoing paragraph was due to the formation of the hydrc of the alkaloid and not to simple "salting out" effect.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

AMERICAN BOARD OF OTOLARYNGOLOGY: Chicago, Oct. 19. Sec., Dr. H. W. Loeb, 1402 South Grand Blvd., St. Louis, Mo.

ARIZONA: Phoenix, Oct. 6-7. Sec., Dr. W. O. Sweek, 404 Heard Bldg., Phoenix.

CALIFORNIA: Sacramento, Oct. 19-22. Sec., Dr. Charles B. Pinkham, 906 Forum Bldg., Sacramento.

COLORADO: Denver, Oct. 6. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

DISTRICT OF COLUMBIA: Washington, Oct. 13. Sec., Dr. Edgar P. Copeland, Stoneleigh Court, Washington.

FLORIDA: Tallahassee, Oct. 13-14. Sec., Dr. W. M. Rowlett, Citizens Bank Building, Tampa.

GEORGIA: Atlanta, Oct. 13-15. Sec., Dr. C. T. Nolan, Marietta.

HAWAII: Honolulu, Oct. 12-15. Sec., Dr. Guy C. Milnor, 401 Beretania St., Honolulu.

IDAHO: Boise, Oct. 6. Commissioner of Law Enforcement, Mr. F. A. Jeter, Boise.

ILLINOIS: Chicago, Oct. 6-8. Director, Mr. A. M. Shelton, Capitol Bldg., Springfield.

IOWA: Des Moines, Oct. 14-16. Dir. of Examinations and Licenses, Mr. H. W. Grefe, Des Moines.

KANSAS: Topeka, Oct. 13. Sec., Dr. Albert S. Ross, Sabetha.

MICHIGAN: Lansing, Oct. 13-15. Sec., Dr. Guy L. Connor, 707 Stroh Bldg., Detroit.

MINNESOTA: Minneapolis, Oct. 6-8. Sec., Dr. Thomas S. McDavitt, Lowry Bldg., St. Paul.

MISSOURI: Kansas City, Oct. 27-30. Sec., Dr. James Stewart, Jefferson City.

MONTANA: Helena, Oct. 6. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

NATIONAL BOARD OF MEDICAL EXAMINERS: Part III, Baltimore, Oct. 15. All applications for this examination must be made on or before Oct. 1. Sec., Dr. J. S. Rodman, 1600 Walnut St., Philadelphia.

NEVADA: Carson City, Nov. 2. Sec., Dr. Simeon L. Lee, Carson City.

NEW JERSEY: Trenton, Oct. 20-21. Sec., Dr. Alex. Macalister, Trenton Trust Bldg., Trenton.

NEW MEXICO: Santa Fe, Oct. 12-13. Sec., Dr. W. T. Joyner, Roswell.

RHODE ISLAND: Providence, Oct. 1. Sec., Dr. Byron U. Richards, State House, Providence.

UTAH: Salt Lake City, Oct. 6. Director of Regis., Mr. J. T. Hammond, 412 State Capitol Bldg., Salt Lake City.

WEST VIRGINIA: Charleston, Oct. 13. Sec., Dr. W. T. Henshaw, Charleston.

WYOMING: Cheyenne, Oct. 5-7. Sec., Dr. G. M. Anderson, State Capitol, Cheyenne.

Maryland June Examination

Dr. Henry M. Fitzhugh, secretary of the Maryland Board of Medical Examiners, reports the written examination held at Baltimore, June 16-19, 1925. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Of the 92 candidates examined, 87 passed and 5 failed. Twelve candidates were licensed by reciprocity. One candidate was licensed by endorsement of credentials. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Yale University (1922) 87,	(1924)	84.5
Howard University School of Medicine	(1925) 77,	83
George Washington University School of Medicine	(1924)	87
University of Kansas School of Medicine	(1922)	78
Tulane University	(1924)	86.8
Johns Hopkins University (1922) 90, (1923) 78.8,	(1924)	87.5, 91,
(1925) 79, 79.6, 80.7, 82, 82, 82, 82.7, 82.7, 83, 84, 84, 84, 86.5, 86.6, 89, 91.6, 92, 92, 93, **		
University of Maryland (1924) 78.5, 81, 81,	85, 85.7,	86, 87,
(1925) 75, 78, 79.7, 81, 81, 81, 82, 82, 82.6, 82.6, 82.8, 82.8, 83, 83.6, 84, 84.5, 84.7, 84.8, 86, 86, 86, 86.8, 87, 87, 87.8, 88, 88, 88, 89, 89.7, 90, 90.8, 91.5, 92		
Maryland Medical College	(1911)	75
University of Michigan Medical School	(1925)	86
Jefferson Medical College (1923) 81, 84,	(1924)	85,
(1925) 85		
University of Pennsylvania	(1924)	86
Meharry Medicinal College	(1924)	76.7
University of Toronto Faculty of Medicine	(1923)	86.5
McGill University Faculty of Medicine	(1924)	83.7
University of Vienna, Austria	(1923)*	82.8
University of Munich, Germany	(1922)*	83
University of Wurzburg, Germany	(1920)*	75
Donskey University, Russia	(1920)*	75
University of Petrograd, Russia	(1921)*	78.8

FAILED

College	Year Grad.	Per Cent.
Howard University School of Medicine	(1925)	70
Loyola University School of Medicine	(1925)	**
Ekaterinoslaw State Medical Academy, Russia	(1921)*	71
University of Kharkov, Russia	(1912)*	70
University of St. Vladimira, Kief, Russia	(1922)*	52.5

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
George Washington University (1920) West Virginia.	(1923)	Dist. Colum.
American Medical Missionary College (1903) Calif.	(1906)	Michigan
College of Physicians and Surgeons, Baltimore	(1912)	W. Virginia
Tufts College Medical College	(1905)	Maine
University Medical College of Kansas City	(1899)	S. Carolina
Creighton Medical College	(1919)	Nebraska
Columbia University	(1914)	Dist. Colum.
Medico-Chirurgical College of Philadelphia	(1898)	Penna.
Medical College of the State of South Carolina	(1915)	S. Carolina
University of Virginia	(1922)	Dist. Colum.

ENDORSEMENT OF CREDENTIALS

College	Year Grad.	Endorsement with
Johns Hopkins University	(1922)	N. B. M. Ex.

Dr. Fitzhugh also reports that two candidates were licensed by special examination. The following colleges were represented:

College	Year Grad.	Per Cent.
Rush Medical College	(1899)	**
Johns Hopkins University	(1916)	**

* Graduation not verified by American Medical Association.

** No grade given.

Vermont June Examination

Dr. W. Scott Nay, secretary of the Vermont Board of Medical Registration, reports the written examination held at Burlington, June 24-26, 1925. The examination covered 12 subjects and included 90 questions. An average of 75 per cent. was required to pass. Forty-eight candidates were examined, all of whom passed. One candidate was licensed by reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Louisville	(1917)	82.8,
College of Physicians and Surgeons, Boston	(1905)	76.4
Harvard University (1923) 89.1,	(1924)	88.6
Tufts College Medical School	(1925)	81.1
University of Vermont (1911) 75, (1921) 85.1,	(1924)	82.2,
(1925) 81.1, 82.4, 82.5, 83.1, 83.1, 83.5, 83.8, 83.9, 83.9, 84.1, 84.1, 84.1, 84.4, 84.7, 84.7, 85, 85, 85.2, 85.2, 85.2, 85.2, 85.3, 85.8, 85.8, 85.8, 86, 86.2, 86.4, 86.4, 87,7, 88.1, 88.1, 89.1, 89.2, 90.1		
McGill University Faculty of Medicine	(1923)	85.1, 89.7,
(1924) 83.4, 83.1, 84.6		

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
Boston University School of Medicine	(1898)	Mass.

Book Notices

HEREDITARY DISORDERS OF BONE DEVELOPMENT. Part I. Diaphysial Aclasis (Multiple Exostoses). Multiple Enchondromata, Cleido-Cranial Dysostosis. By Percy Stocks, M.D., D.P.H. With the Assistance of Amy Barrington. University of London. The Treasury of Human Inheritance. Edited by Karl Pearson, F.R.S. Volume III. Francis Galton Laboratory for National Eugenics. Eugenics Laboratory Memoirs. XXII. Paper. Price, 45 shillings net. Pp. 182, with illustrations. London: Cambridge University Press, 1925.

Abnormal growths of bone occurred in primitive man. This fact has been established by the discovery in the Ile d'Yeu of exostosis of the tibia on a human skeleton dating from neolithic times. Disorders of bone development have been found on skeletons of vertebrates as far back as the cretaceous age, but it is only within the last half century that the hereditary character of certain types of these disorders in man has been determined. The present study opens with a section on the normal development of bone, followed by a consideration of the pathology of bone development. By 1890, about forty families had been described as exhibiting exostoses in two or more members, the first one being reported in 1837. Usually the development of exostosis is arrested with the cessation of skeletal growth, and in twenty-four cases in which the necessary data were obtained, the average age was 17½ years. Occasionally, exostoses diminish in size after reaching their maximum, and have been known to disappear entirely; in other cases, after an apparent cessation of growth a sudden recrudescence occurs. The number of exostoses found on one person ranges from one up to a thousand. In one of Fischer's families, four brothers in the first generation had two or three exostoses on the femur and tibia; in the second generation, three brothers had a large number of small growths widely scattered; in the third generation, three brothers and a cousin each had two or three exostoses of large size, chiefly on the ulna and tibia, and in the fourth generation a child 3 years of age developed tibial exostosis. In Maclean's families, a brother and sister in the first generation had fifty-two and thirty-one exostoses, respectively; the four children of the brother had seventy-nine, eighty-three, 101 and 108 exostoses, respectively. A table of this family shows the inheritance from parent to child in 372 pairs as regards single or multiple growths. In thirty-three instances in which the parent had a single growth, the child had a single growth in ten, whereas in 339 instances in which the parent had multiple growths, the child had a single growth in only six. When the distribution of the growths is unilateral in a parent, the tendency is for the distribution to be bilateral in the child in about half of the cases and to remain unilateral in about one fifth. When the distribution is bilateral in a parent, it tends to remain bilateral in the child in about 60 per cent. of the cases and to become unilateral in about one tenth of them. Out of 1,124 cases of multiple exostoses, excluding those with associated enchondromas, 727 gave a definite history of the disorder occuring among relatives. There is an extensive bibliography at the close of each chapter, and plates showing heredity of multiple exostoses in certain families. There are also photographs and roentgenograms of cases.

SURGERY OF THE EYE. A Hand-Book for Students and Practitioners. By Irvin Török, M.D., Surgeon to the Herman Knapp Memorial Eye Hospital, and Gerald H. Grout, M.D., Surgeon to the Herman Knapp Memorial Eye Hospital. Second edition. Cloth. Price, $6.50. Pp. 484, with 510 illustrations. Philadelphia: Lea & Febiger, 1925.

It is obviously impossible to compress into 450 pages a complete treatise on surgery of the eye; it is essential that generalities be considered at greater length than details of individual operations. This the authors have succeeded in doing, as is pointed out in the introduction, written by Arnold Knapp. The surgical anatomy of the eye and adnexa is well and clearly written, although somewhat more attention might well have been paid to the all important angle of the anterior chamber. The first 110 pages are devoted to the general technical phases of ophthalmic surgery, the necessary instruments and their use, and forms a section of great value for the beginner in this field. The subsequent chapters take up the surgery of the especial parts, headed in every instance by the indications for operation. Then come descriptions of the various operations aimed at the same end-result, one operation serving to illustrate various ones of the same class. The intra-operative and postoperative complications and their management are discussed at sufficient length, and the postoperative care is given the necessary space. The proofreading and printing are excellent, and the illustrations, for the major part, are well drawn and really illustrative. It would seem that conservatism is the keynote of this book, which is written essentially for beginners in ophthalmic surgery. Some of the opinions expressed differ from those held by ophthalmic surgeons of experience, but the beginner will not go amiss in following the dicta laid down in the text. For example, it is stated that an incomplete total keratoplasty has never been successful; the recent works of Elschnig and Ascher have proved to the contrary; but a keratoplasty is no operation for a tyro to attempt.

THE DENTIST'S OWN BOOK. A Faithful Account of the Experiences Gained During Forty-Six Years of Dental Practice, Including a Complete Bookkeeping and Recording System and a Description of the Management of a Dental Practice. By C. Edmund Kells, D.D.S. Cloth. Price, $7.50. Pp. 510, with 116 illustrations. St. Louis: The C. V. Mosby Company, 1925.

This gives an account of the author's experience during forty-six years of dental practice, and includes a complete bookkeeping and recording system. It is not an autobiography, but rather a book of good advice to the practitioner of today. The style of the book serves to acquaint those who have not had the good fortune to know Dr. Kells with a unique personality. Dr. Kells has always been a critical observer and, to the ordinary mortal, tantalizingly exact. This book reflects on every page his delightful personality and his keenness for details. It is easy to read and is replete with information of value to every practitioner. It is divided into three parts: Part 1 consists of a brief summary of the qualities necessary to successful practice; Part 2 is devoted to dental economics, and Part 3 carries the title Jambalaya. The chapter on dental economics consists of 144 pages and gives, to the most minute detail, descriptions of record and bookkeeping systems adapted for large and small offices, with instructions for practice management, including the handling of patients. The third chapter, of 314 pages, is devoted largely to office efficiency, and includes carefully written descriptions of the reception room, business office, operating room and laboratory. The book is full of good advice to both the beginner and the practitioner of experience.

Medicolegal

"Sound Health" and "Good Health" Practically Same

(Metropolitan Life Ins. Co. v. Chappell et al. (Tenn.), 269 S. W. R. 21)

The Supreme Court of Tennessee, in holding valid a provision in a life insurance policy that the insurance company assumed no obligation thereunder unless the insured was in "sound health" at the date of the policy, says that, as used in life insurance policies, there is no material difference between "sound health" and "good health." The phrase "sound health," when used in the sense that it was in the policy in this case, is not to be taken literally. It does not mean perfect health, or imply absolute freedom from bodily infirmity or tendency to disease, but means generally the absence of any vice or disease in the constitution of a serious nature, or that had a direct tendency to shorten life, as contradistinguished from a temporary ailment or indisposition. That one is in "good health," within the contemplation of such provision of a life insurance policy means that he or she has no grave, important or serious disease, and is free from any ailment that seriously affects the general soundness or healthfulness of his or her system. The application of the condition in a policy that the company assumes no obligation unless the insured was in sound health at the date of the policy is not controlled by the insured's knowledge or lack of knowledge that he was not in sound health. It is the fact of sound health of the insured which determines the liability of the insurance company in this character of policies, not apparent health, or the insured's or any one's opinion or belief that he was in sound health.

Testimony Not Prohibited by Statute—As to Lucid Intervals in Senile Dementia

(In re Williams' Estate (Wis.), 202 N. W. R. 314)

The Supreme Court of Wisconsin, in affirming a judgment in favor of the contestants of a will wherein it was found that the testatrix was not of testamentary capacity, says that the medical testimony chiefly relied on by the contestants was that of a physician at a sanatorium where the testatrix was in the mental ward in April and May, to which sanatorium she was again removed, July 17, between which times she was at another sanatorium. The will was made, July 19. The testimony of this physician was to the effect that on the date of the will, and for some time before, the testatrix had senile dementia in an advanced stage, and was not competent to make a will. He had treated her years before, and after the execution of the will, while in his sanatorium. While she was at his sanatorium in April and May she was the patient of another physician, at whose sanatorium there had been a fire—the other sanatorium mentioned above. A hypothetic question was asked the witness in which he was told to disregard any information he obtained during any professional treatment, and he testified as stated above; that during April and May he frequently saw the testatrix and talked with her; that she would shake hands and smile, but did not recognize him, and did not know where she was. It was urged that all this testimony of the physician was incompetent under Section 4075 of the Wisconsin Statutes. But the information on which he based his testimony was not gained while treating the testatrix professionally, and therefore the evidence was not prohibited by the statute. According to his testimony, he rendered no professional services for her while she was in the care of the other physician. It is a matter of common knowledge that physicians are sometimes somewhat jeal- of any interference with their treatment of their own by other physicians, unless it is requested, and there seemed no reason to doubt the testimony of this witness on this subject. He was asked to exclude any information he had gained while he had treated the testatrix, and to answer solely on such knowledge as he had gained while not acting as her physician, and he stated that he could do so. The statute should be liberally construed to effect its purpose, but not so strictly as to exclude the opinion of a physician as to the mental condition of a person, based on observation alone during a given period, because the physician may have rendered professional service for that person at an earlier or later time.

There was a very able argument by way of explanation of the medical condition of the testatrix, and along the line that there was a lucid interval when the will was executed. But the only medical witness who had special experience in mental diseases testified that on the date of the execution of the will the testatrix was in the last stages of senile dementia, and that in advanced stages of senile dementia there are no lucid intervals. In *Estate of Bean,* 159 Wis. 67, 149 N. W. 745, in which senile dementia was claimed, it was said that "the mind gradually loses its alertness and power of concentration until it is no longer capable of forming an intelligent judgment. When that period arrives, it is probable that there are no lucid intervals, although the person afflicted may be brighter at some periods than at others."

That the habits of neatness and care of the testatrix for her personal appearance had changed to those of greatest neglect and indifference, the court deems a change far more significant than if it were to occur in the life of one of the other sex.

Physicians and Surgeons of Employees—Privilege

(Johnson v. Missouri Pac. R. Co. (Ark.), 269 S. W. R. 67)

The Supreme Court of Arkansas says that according to the testimony of the plaintiff, after he had sustained personal injuries while in the employ of the defendant as a locomotive fireman, he was first examined by the physicians of the Missouri Pacific Hospital Association at Fort Smith, and they were not certain as to the extent of his injuries. He was a member of the association, and his dues, together with those of the other employees of the railroad company, kept up the various hospital associations of the railroad, and the physicians and surgeons employed therein were paid by these dues. Therefore it followed that all these physicians and surgeons were the physicians and surgeons of the employees of the railroad company.

Owing to the uncertainty as to the extent of his injuries, the plaintiff agreed with the claim agent of the railroad company to go to St. Louis and be examined with a view of ascertaining the extent and character of his injuries in order that he might settle therefor with the claim agent. After the plaintiff had been examined by the surgeon at St. Louis, the latter was called as a witness on the trial of the case to testify on behalf of the defendant as to the character and extent of the plaintiff's injuries. The plaintiff objected to his testifying, but the trial judge allowed him to testify in behalf of the defendant, over the plaintiff's objection. But a physician in charge of a railroad hospital, whose services are compensated by assessments on the wages of the railroad employees, acts in a professional employment, within the rule excluding communications made by a patient to his physician, in the course of professional capacity in examining an injured employee who is sent to the hospital, and eliciting information as to his injuries on the day of the examination.

Counsel for the defendant admitted the correctness of the general rule, but attempted to differentiate this case on the ground that the plaintiff agreed with the claim agent of the railroad company to go to St. Louis and be examined by the general surgeon in charge of the hospital there in order to learn the character and extent of his injuries with a view to a settlement. This did not make any difference. The General Hospital Association at St. Louis was kept up by contributions from the employees of the railroad, and the physicians and surgeons in charge were the physicians and surgeons of the employees. The plaintiff had it in his mind to be treated by the surgeon there as well as to be examined with a view to making a settlement with the railroad company. If he afterward changed his mind, and did not wish to settle or treat with the railroad company, he had the right to do so, and this would not constitute a waiver of the privilege.

To this the court adds the statement that when the plaintiff went to St. Louis he reported to the chief surgeon of the General Hospital Association at St. Louis. The chief surgeon assigned the case to another surgeon, who was a member of his staff. It was true that the latter surgeon did not devote all of his time to surgical operations at the Missouri Pacific Hospital at St. Louis, but nevertheless he was a member of the general staff, and was paid by the employees of the railroad company for his services in that respect. His was the testimony which it is held was erroneously allowed to go to the jury.

Testimony Based on Urinalysis Made in Own Laboratory

(Willis v. Buchanan County Quarries Co. (Mo.), 268 S. W. R. 102)

The Kansas City (Mo.) Court of Appeals says that in this action to recover damages for personal injuries the physician who had attended the plaintiff testified that he had had a sample of urine examined, and, over the defendant's objection that it called for hearsay, was permitted to testify that the urine showed blood, some albumin, casts, urates and phosphates. The question was then asked: "What was the significance of that?" and the defendant moved to strike out the answer on the ground that it was an examination made by somebody else, but the motion was overruled. On cross-examination the physician stated that the urinalysis was made in his laboratory where he had all his work done, but he didn't remember whether or not he was right in there when it was made; that he was basing his answer as to the examination of the urine on the report made to him by somebody else in his laboratory. The court of appeals does not consider that there was error in permitting the physician to give testimony based on the so-called secondary or hearsay evidence, the testimony showing that the analysis was made in the physician's laboratory and under his supervision, besides which his testimony on this point was supplemented by that of two other physicians, who testified to the same conditions.

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Chicago, Oct. 20-24. Dr. Luther C. Peter, Chestnut and 20th Streets, Philadelphia, Secretary.

American Association of Railway Surgeons, Chicago, Oct. 21-23. Dr. Louis J. Mitchell, 29 East Madison Street, Chicago, Secretary.

American College of Radiology and Physiotherapy, Chicago, Oct. 19-22. Dr. Roy W. Fouts, 121 South 33d Street, Omaha, Neb., Secretary.

American College of Surgeons, Philadelphia, Oct. 26-30. Dr. Franklin H. Martin, 40 East Erie Street, Chicago, Director-General.

American Public Health Association, St. Louis, Oct. 19-22. Mr. Homer N. Calver, 370 Seventh Avenue, New York, Executive Secretary.

Association of Military Surgeons of the United States, New York, Oct. 8-10. Col. J. R. Kean, U. S. A. Ret., Army Medical Museum, Washington, D. C., Secretary.

Central Neuropsychiatric Association, Ann Arbor, Oct. 23-24. Dr. Karl A. Menninger, Neuropsychiatric Clinic, Topeka, Kan., Secretary.

Central States Pediatric Society, Chicago, November 6-7. Dr. H. T. Price, Westinghouse Building, Pittsburgh, Secretary.

Colorado State Medical Society, Colorado Springs, Sept. 29-Oct. 1. Dr. F. B. Stephenson, Metropolitan Building, Denver, Secretary.

Delaware State Medical Society, Wilmington, Oct. 13-14. Dr. W. O. La Motte, Industrial Trust Building, Wilmington, Secretary.

Interstate Postgraduate Assembly of America, St. Paul, Minn., Oct. 12-16. Dr. W. B. Peck, 82 Stephenson St., Freeport, Ill., Managing Director.

Kansas City Clinical Society, Kansas City, Mo., Oct. 5-9. Dr. James R. McVay, Rialto Building, Kansas City, Mo., Secretary.

Kentucky State Medical Association, Owensboro, Oct. 5-9. Dr. A. T. McCormack, 532 West Main Street, Louisville, Secretary.

Missouri Valley, Medical Society of the, St. Joseph, Sept. 30-Oct. 2. Dr. Charles Wood Fassett, 115 East 31st Street, Kansas City, Mo., Secretary.

Pennsylvania, Medical Society of the State of, Harrisburg, Oct. 5-8. Dr. Walter F. Donaldson, Jenkins Arcade, Pittsburgh, Secretary.

Southern Medical Association, Dallas, Texas, November 9-12. Mr. C. P. Loranz, Empire Bldg., Birmingham, Ala., Secretary.

Vermont State Medical Society, St. Johnsbury, Oct. 15-16. Dr. William G. Ricker, 29 Main Street, St. Johnsbury, Secretary.

Virginia, Medical Society of, Richmond, Oct. 13-16. Miss Agnes V. Edwards, 104½ West Grace Street, Richmond, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to The Journal for a period of three days. No foreign journals are available prior to 1920, nor domestic prior to 1923. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested).

Titles marked with an asterisk (*) are abstracted below.

American Journal of Public Health, Albany, N. Y.

15: 673-756 (Aug.) 1925

Part of State Health Departments in School Hygiene Programs. E. R. Kelley, Boston.—p. 673.
*Direct Cultivation of Mycobacterium Tuberculosis. J. A. Cancik and N. Mazepova, Prague, Czechoslovakia.—p. 679.
Rôle of State in Industrial Hygiene. E. R. Hayhurst, Columbus, Ohio. —p. 681.
Typhoid Fever Epidemic at Soldier Summit, Utah. J. Wallace, Salt Lake City.—p. 686.
Humidity Control in Residences. P. Drinker, Boston.—p. 689.
*Successful Hookworm Control with Chenopodium-Carbon Tetrachlorid. H. R. O'Brien, Bangkok, Siam.—p. 696.
*Bacteriologic Data on Chlorin Treatment of Repiratory Diseases. H. J. Nichols, J. S. Simmons and J. P. Hitchens, Washington, D. C.— p. 699.
Use of Civic and Religious Organizations in Public Health. J. J. Durrett, Memphis, Tenn.—p. 708.

Cultivation of Tubercle Bacillus.—An egg-agar culture medium has been devised by Cancik and Mazepova for the direct cultivation of *Mycobacterium tuberculosis*, which is not colliquated by the contaminating bacteria.

Hookworm Control in Siam.—More than 225,000 persons have been treated in Siam since May, 1923, with a mixture of chenopodium (40 per cent.) and carbon tetrachlorid (60 per cent.). This mixture combined the efficiency of carbon tetrachlorid in dealing with hookworms and the virtues of chenopodium in removing other parasites present. The dilution with carbon tetrachlorid served to lessen the discomfort of taking. The maximum dose was 2 c.c. Only three deaths were reported which on investigation were found to have any connection with the campaign treatment.

Chlorin Treatment of Respiratory Diseases.—This paper by Nichols, Simmons and Hitchens is a summary of the results of bacteriologic studies of the recently proposed chlorin treatment of respiratory diseases. It is part of a combined clinical and laboratory investigation which has been carried on by a board of officers for nearly a year at the Army Medical School and Walter Reed Hospital. The chlorin treatment, in their hands, has given no evidence of even partial sterilization of the mucous membranes of the upper air passages. It does not kill *B. prodigiosus* sprayed on these membranes. The authors are of the opinion that, in the doses used, the chlorin is neutralized and becomes inert, and that effective doses are too toxic.

Archives of Otolaryngology, Chicago

2: 111-216 (Aug.) 1925

End-Results of Sinus Surgery in Children. J. J. Shea, Memphis, Tenn.—p. 111.
Bilateral Recurrent Nerve Paralysis Due to Aortic Aneurysm. P. B. MacCready, New Haven, Conn.—p. 122.
Restoration of Lacrimal Passage after Excision of Sac. J. F. Callahan, Brockton, Mass.—p. 127.
*Ephedrin Sulphate, Alkaloid of Ma Huang. G. Fetterolf and M. B. Sponsler, Philadelphia.—p. 132.
Lung Abscesses Cured by Bronchoscopy. M. C. Myerson, New York. —p. 136.
Paranasal Cavities. Review of Literature of 1924. H. W. Loeb, St. Louis.—p. 141.

Ephedrin Sulphate.—Fetterolf and Sponsler assert that as a drug for local use in the nose ephedrin sulphate has all the advantages of epinephrin and perhaps none of the disadvantages. The extreme degree of nasal irritation which so frequently follows the local use of the latter drug was conspiculously absent in all cases in which the drug was used.

Arkansas Medical Society Journal, Little Rock

22: 61-80 (Aug.) 1925

Medical Practice Act—Reversal of Medical Ethics on Advertising. C. M. Rosser, Dallas, Texas.—p. 61.
Nurses Taught Bandaging. J. M. [illegible]
Hernia Through Foramen of Winslow. M. E. Foster, Fort Smith.— p. 64.
Necessity and Selective Method of Removing Tonsils in Toto. D. E. White, El Dorado.—p. 67.
Hysterectomy. G. C. Cannon, Hope.—p. 72.

Atlantic Medical Journal, Harrisburg, Pa.

28: 725-810 (Aug.) 1925

*Diagnosis of Tuberculosis in Childhood. C. H. Smith, New York.— p. 725.
Infant Mortality in Certain Community. J. D. Donnelly, Harrisburg. —p. 732.
Bullous Keratitis Associated with Sinus Disease. J. M. Griscom, Philadelphia.—p. 740.
Cerebellar Abscess. W. D. Chase, Bethlehem.—p. 742.
*Technical Aspects of Acute Appendicitis. G. P. Müller, Philadelphia.— p. 749.
*Surgical Treatment of Chronic Sciatica. W. J. Taylor, Philadelphia.— p. 756.
Treatment of Diabetes in Private Practice. H. G. Schleiter, Pittsburgh. —p. 758.
Kümmel's Disease. A. E. Colcher, Philadelphia.—p. 763.

Diagnosis of Tuberculosis in Child.—Smith says that in a child, tuberculosis in the bronchial nodes is the most frequent lesion found, and is at the same time very easily overlooked. When a child is seen who is pale and droopy, distinctly undernourished, or with a history of loss of weight, with bright eyes, long lashes, and hairy arms and nape, tuberculosis should be suspected. A positive tuberculin test will show that the child harbors the bacillus. Then a temperature record should be kept to see if there is activity of the process. A careful physical examination, with especial attention to the interscapular region, will often show a tracheal whisper to the fifth or sixth dorsal spine, and occasionally an asymmetrical upper line of pulmonary resonance. The lungs should also be examined with great care, especially in the nipple region and axilla, for persistent râles here are suggestive, as are signs of dry pleurisy or effusion. The superficial nodes must all be palpated, and the abdomen carefully searched for masses or ascites. The spine and bones must be thoroughly examined. Signs of early meningitis, such as crossness, headache and vomiting, must not be forgotten.

Appendicitis.—It appears from Müller's study that not only must the necessity for early operation and the avoidance of catharsis still be preached, but also that the surgeon himself, in order to avoid complications, must individualize his patients, and push to the limit every means for the proper care of the local area of disease and for the combating of the constitutional toxemia.

Surgical Treatment of Chronic Sciatica.—Emphasis is laid by Taylor on the fact that all cases of chronic sciatica are not suitable for operation, but only those which cannot be relieved of pain by the ordinary medical measures (rest in bed, electricity) and which are affected for a sufficient length of time to eliminate the probability of recovery without some more radical probability. Taylor has operated eighteen times on sixteen patients, with almost uniformly good results, relieving the pain and permitting the individuals to return to their work. All of them had suffered such pain that they could not continue their employment. There have been no mortality or complications in this series, all the patients making rapid and uninterrupted surgical recoveries. The operation consists in exposing the nerve and freeing it from all adhesions.

California and Western Medicine, San Francisco

23: 977-1088 (Aug.) 1925

Focal Infection. F. P. Wisner, San Francisco.—p. 977.
Systemic and Dental Conditions of Fourteen Dental Students. F. P. Wisner, San Francisco.—p. 980.
*Treatment of Poison Oak Dermatitis. H. E. Alderson, San Francisco. —p. 982.
Osteomyelitis of Skull. H. Fleming, San Francisco.—p. 985.
Artificial Feeding of Newly-Born Infants. W. M. Happ, Los Angeles. —p. 988.
*Prostate and Its Influence on Low-Back Pain. L. P. Player, San Francisco.—p. 993.
*Consideration of Progressive Muscular Dystrophy with Pseudohypertrophy from an Endocrine Standpoint. C. Wright, Los Angeles.— p. 999.
Treatment of Early Carcinoma of Uterus. [illegible]

Infectious Jaundice in Utah. J. H. Peck, Tooele, Utah.—p. 1006.
Roentgen-Ray Diagnosis of Diseases of Nasal Accessory Sinuses. R. A. Powers, Palo Alto.—p. 1009.
Extrapleural Thoracoplasty. S. D. Gleeten, Monrovia.—p. 1011.
Allergy and Its Relation to Otolaryngologist. G. Piness and H. Miller, Los Angeles.—p. 1014.
Osteochondritis of Second Metatarsophalangeal Joint. A. Gottlieb, Los Angeles.—p. 1019.
Heart Pain. T. H. Kelly, San Francisco.—p. 1023.
Questionable Diagnostic Methods. J. W. Shuman, Los Angeles.—p. 1027.

Treatment of Poison Oak Dermatitis.—Alderson relates his experience and that of others with the use of poison oak extract in the treatment of poison oak dermatitis. It succeeds in over 80 per cent. of cases. The poison oak toxin is prepared in two strengths, "concentrated" and dilute. In acute cases an intragluteal injection of 1 c.c. of the concentrated toxin is given at once. This is repeated in twenty-four hours if improvement is not shown. Then the dilute solution is given by mouth, starting with 10 drops, giving it three times daily, increasing by 1 drop each dose until 20 drops are reached. Then one teaspoonful is ordered once daily and gradually the dose is increased to two teaspoonfuls daily. In every case an effort to develop immunity is made by having the toxins taken steadily for two or three weeks. For immunization, the dilute solution is prescribed in ascending doses, starting with 10 drops. Patients are advised to start taking the preparation several weeks before going to the country and to continue a week or so after arriving there. As the object of the treatment is to develop increasing tolerance for the poison steady uninterrupted medication is essential. A high degree of tolerance and almost complete immunity may be produced.

Prostatitis Causes Backache.—Player asserts that one of the most important causes of backache in man is prostatitis. Routine examination of the prostate should be made in all male patients complaining of backache, and, if it is found to be involved, proper treatment should be given.

Pituitary Extract in Progressive Muscular Dystrophy.—Wright reports good results from the use of pituitary extract in these cases. While complete cure has not been effected, a large percentage of patients have been benefited to the extent that the paralysis seems nonprogressive and the exacerbations are less frequent and less severe, and in two or three patients there has been a very marked improvement. The mental condition of all patients has been greatly improved. It is Wright's opinion that dysfunction of the pituitary gland is an important etiologic factor in progressive muscular dystrophy.

Indiana State Medical Association Journal, Ft. Wayne

18: 281-310 (Aug.) 1925

How Can Mortality of Prostatectomy be Lowered and End Results be Improved. D. N. Eisendrath, Chicago.—p. 281.
Intestinal Obstruction. M. F. Porter, Fort Wayne.—p. 283.
Luminal in Epilepsy. C. F. Sexauer and D. E. Bell, New Castle.—p. 285.
Cholecystectomy in Gallbladder Disease. L. W. Elston, Fort Wayne.—p. 286.

Johns Hopkins Hospital Bulletin, Baltimore

37: *75-156 (Aug.) 1925*

*Pyloric Stenosis of Infants; Sixty Cases. W. C. Davison, Baltimore.—p. 75.
*Biology of Streptococcus Erysipelatis. II. Demonstration of Antigenic Relationships Among Strains of Streptococcus Erysipelatis by Intradermal Protection Tests. K. E. Birkhaug, Baltimore.—p. 85.
Vital and Supravital Studies of Cells of Cerebrospinal Fluid of Meninges in Cats. L. S. Kubie and G. M. Schultz, Baltimore.—p. 91.
*Argentaffine Tumors of Appendix and Small Intestine. W. D. Forbus, Baltimore.—p. 130.

Pyloric Stenosis.—The frequency of pyloric stenosis, as determined by Davison from a study of sixty patients, of whom thirty-two were treated medically and twenty-eight were operated on, was highest among white, male, first-born infants of normal birth weight. The case fatality rate was highest among those who were not constipated, in whom the onset was sudden, who weighed less than 7 pounds at birth and on admission, and who had lost the most weight since birth. No fatalities occurred among infants who were overweight at birth or who had gained in weight between birth and admission to the hospital. The fact that the case fatality rate was slightly higher in the surgical than in the medical group, Davison says, is no reason that all infants with pyloric stenosis should be treated medically, but it is a very good argument against operating on all of these patients as soon as the diagnosis is made, as some surgeons have recommended. By selective therapy, rather than by exclusively surgical or medical treatment, the total case fatality rate can be reduced.

Biology of Streptococcus Erysipelatis.—Intradermal infiltration of the skin of rabbits with immune erysipelas serum twenty-four hours previous to the injection of hemolytic streptococci of erysipelas and nonerysipelas origin, Birkhaug says, offered adequate protection against 93 per cent. of cultures of erysipelatous streptococci. Immune erysipelas serum offered no local passive immunity against the injurious action of cultures of nonerysipelas hemolytic streptococci. Intradermal infiltration with immune scarlatinal serum twenty-four hours previous to the injection of hemolytic streptococci isolated from throat secretions of scarlet fever patients offered local protection against the injurious action of the homologous and heterologous cultures of scarlatinal streptococci. Immune scarlatinal serum offered no local passive immunity against the injurious action of cultures of nonscarlatinal hemolytic streptococci. Intradermal infiltration with normal rabbit serum did not protect against the injurious action of intradermally injected hemolytic streptococci in the doses used. Antigenic relationships demonstrable by agglutination and agglutinin absorption tests were confirmed with regularity by in vivo local passive immunity experiments. Birkhaug says that by this method of local passive immunity it is possible to differentiate a group of hemolytic streptococci causing erysipelas from a group of hemolytic streptococci responsible for scarlet fever, on the one hand, and on the other, from the large series of miscellaneous hemolytic streptococci producing a variety of pyogenic infections.

Argentaffine Tumors of Gastro-Intestinal Tract.—A multiplicity of opinions are on record regarding the nature and the origin of the small carcinoid tumors which occur throughout the gastro-intestinal tract. Forbus suggests that the weight of evidence is in favor of the endocrine origin of these tumors and that they may be rightly called "endocrine tumors," or probably better "argentaffine tumors," and permanently separated from the general group of carcinoma. Six cases of so-called "carcinoma" of the appendix and small intestine are described, and the argentaffine or chromaffine character of the cells of these tumors, originally described by Gosset and Masson, confirmed. The "carcinomas" or "carcinoids" of the appendix and small intestine have their origin in the cells of Kultschitsky and Schmidt of the crypts of Lieberkühn and, therefore, are tumors of the chromaffine system. They may be spoken of as argentaffine tumors, in view of the peculiar ability of the granules of the tumor cells to reduce an ammoniacal solution of silver. The importance of differentiation between the argentaffine tumors and a peculiar form of adenocarcinoma of the appendix and small intestine, which is superficially similar to the argentaffine tumors, is emphasized. Attention is called to the general harmless character of the argentaffine tumors. A review of the literature is given tracing the development of the various opinions regarding the so-called "carcinomas" or "carcinoids" of the gastro-intestinal tract.

Journal of Comparative Psychology, Baltimore

5: *293-343 (Aug.) 1925*

Experimental Study in Abstraction in Monkeys. G. Revesz, Amsterdam.—p. 293.

Journal of Infectious Diseases, Chicago

37: *97-192 (Aug.) 1925*

*Diphtheria Immunity: Effect of Repeated Injections of Avirulent Diphtheria Bacilli; B. Hofmanni and B. Xerosis in Guinea-Pigs. M. J. Rosenau and G. H. Bailey, Boston.—p. 97.
*Bacterial Factors in Pyorrhea Alveolaris. IV. Micrococoecus Gazogenes. I. C., Hall and B. Howitt, Berkeley, Calif.—p. 112.
D'Herelle's Bacteriophage. M. S. Marshall, Lansing, Mich.—p. 126.
*Fecal Flora in Pernicious Anemia. L. M. Moench, M. C. Kahn and J. C. Torrey, New York.—p. 161.
Germicidal Properties of Soap. J. E. Walker, Hot Springs, Ark.—p. 181.

Diphtheria Immunity.—Rosenau and Bailey's studies emphasize the essential difference between the so-called avirulent diphtheria bacilli and the true Klebs-Loeffler organism. Not only did the avirulent strains fail to induce immunity, but their agglutination reactions showed that there is a wide immunologic gap separating them from the diphtheria bacillus. Some of these so-called strains have pathogenic properties. No change in virulence was observed in cultures of avirulent diphtheria bacilli or *B. hofmanni* or *B. xerosis* under observation for eighteen months and transferred for thirty-six generations on Loeffler's blood serum. Experimental confirmation was obtained of the correlation between a positive Schick test and susceptibility, and a negative Schick test and immunity.

Pyorrhea Alveolaris; Micrococcus Gazogenes.—Hall and Howitt emphasize the frequent occurrence in human saliva of a minute, gram-negative, nonsperulating, gas forming, obligate anaerobe. It is identical with the so-called staphylococcus (Veillon) recently recovered by Holman and Krock, which they thought resembled *Bacterium pneumosintes* in filtrability. *M. gazogenes* is a minute diplococcus less than 0.5 micron in length and breadth, gram-negative, nonsporulating, nonmotile, and obligately anaerobic. These properties have caused it to be overlooked in most of the modern work on the mouth flora. It is nonpathogenic directly for rabbits, guinea-pigs, and mice, but it appears to reduce the resistance of rabbits toward other pathogenic microbes.

Fecal Flora in Pernicious Anemia.—A bacteriologic analysis made by Moench, Kahn and Torrey of seventy-two stool specimens from thirty-three cases of pernicious anemia of various durations showed in practically every case an unusually large number of viable organisms, of which *B. coli*, streptococci, *B. welchii* and at times *B. acidophilus* were the most prominent types. These findings indicated that the flora of the large intestine is of an actively growing, nonproteolytic, fermentative type. The most significant feature revealed by these examinations would seem to be the uniformly high counts for *B. coli* and *B. welchii*. Pure cultures of *B. welchii* strains were isolated from twenty-six of these cases. Speculation is offered as to the possible significance of active growth of *B. welchii* at the higher levels of the intestine in the production of the pernicious anemia syndrome in view of its well-known capacity to elaborate a potent hemolysin, an irritating acid and neurotoxic substances.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

26: 1-82 (Aug.) 1925

Slowing and Block in Heart Under Digitalis in Animals. A. R. Cushny and K. Y. Yu, Edinburgh.—p. 1.
Effects of Quinidin on Auricular Irritability and Conduction in Terrapin's Heart. A. D. Hirschfelder and C. Cervenka, Minneapolis.—p. 19.
Studies of Intoxication. B. M. Davidson, Aberdeen, Scotland.
  III. Action of Ethylene.—p. 27.
  IV. Action of Propylene.—p. 33.
  V. Action of Ethyl Chlorid.—p, 37.
  VI. Action of Methyl Ether.—p. 42.
*Excretion of Morphin into Stomach. R. A. Hatcher and D. Davis, New York.—p. 49.
*Salicylates. XV. Liberation of Salicyl from and Excretion of Salicyl Salicylate. P. J. Hanzlik and N. E. Presho, San Francisco.—p. 61.
*Id. XVI. Liberation of Salicyl from and Excretion of Methyl Salicylate; Irregular Toxicity of Ester in Man. P. J. Hanzlik and N. E. Presho, San Francisco.—p. 71.

Excretion of Morphin into Stomach.—The commonly accepted view that important amounts of morphin are excreted into the stomach rests solely on the testimony of Alt, which is not supported by any evidence that Hatcher and Davis have been able to discover; on the contrary, a study of the literature shows that careful investigators have uniformly failed to substantiate Alt's contention. Hatcher and Davis have found that only traces of morphin are excreted into the stomach of the cat and dog after the subcutaneous, intramuscular or intravenous injection of amounts varying from 56 mg. (75 mg. of the sulphate) to 982 mg. (1,229 mg. of the sulphate). If gastric lavage is of value in the treatment of morphin poisoning in these animals, this value does not depend on the removal of morphin from the stomach. It is self-evident that the removal of even important amounts of morphin from the stomach could not cause immediate improvement, such as Alt reported.

Study of Salicylates.—The liberation of salicyl from, or decomposition of, salicyl salicylate in vitro was found by Hanzlik and Presho to be relatively slow and poor, being almost negligible in acid buffer mixtures. The liberation was better from a sample of the drug that had stood two years and it was restrained by pancreatine and bile. Accordingly, the claims made for poor gastric liberation of salicylic acid from the drug appear to be justified. However, these factors do not help to account for the considerable absorption of the drug and excretion as ordinary salicylate as indicated by excretion experiments in human subjects. Full therapeutic or clinical "toxic" doses, ranging from 4 to 12 gm. in four subjects, yielded a median total salicyl excretion of 63 per cent. Of the total salicyl excreted, a median of 10 per cent. consisted of the unchanged salicyl salicylate and the remainder, or 90 per cent., of ordinary salicylate. Only about 6 per cent. (median) of the total salicyl salicylate administered was excreted as such. Hence, it appears that the drug is largely converted to salicyl in the tissues. The excretion was uninfluenced by dosage and diuresis; and the duration ranged from ninety-six to 136 hours. The total urinary excretion of salicyl was about the same, namely, a median of 66 per cent. in three normal subjects receiving 1 gm. doses of the drug, independently of the dosage but somewhat dependent on the diuresis. The duration of excretion ranged from forty-two to seventy-two hours.

Liberation of Salicyl from Methyl Salicylate.—The liberation of salicyl from methyl salicylate in "buffer" solutions in vitro Hanzlik and Presho found to be slow and poor, amounting to less than 1 per cent. at the end of six hours under conditions of alkalinity possible in the alimentary tract. It was somewhat higher, less than 2 per cent., at the end of six hours, and less than 3 per cent. at the end of twenty-four hours, in strongly alkaline solution of p_H 8.4. The excretion of total salicylate in six convalescent patients, of whom five received "toxic" doses of the drug, was rather variable and amounted to a median of 50.8 per cent. uninfluenced by dosage of the drug, diuresis and convalescent condition. Of the total salicyl excreted the proportion represented by methyl salicylate studied in five patients was found to be from 0.13 to 0.43 per cent. median 0.21 per cent. and of the amount of ester administered, the total excretion of ester in three patients was from 0.055 to 0.116 per cent. The duration of excretion in six patients was from sixty-two to 124 hours. Three subjects receiving small doses of 1.186 gm. each showed a total salicyl excretion of 50.5 per cent. (median), and the duration was from fifty-one to seventy-four hours. Hence, only a small proportion of methyl salicylate escapes unchanged and it appears that the alkalinity, enzymes and bile of the alimentary tract do not participate much in the considerable liberation of sodium salicylate from methyl salicylate in its passage through the body. The full development of the symptoms of salicylism from methyl salicylate was rather variable in three of the patients, requiring a much longer time than with sodium salicylate, acetylsalicylic acid and salicyl salicylate, suggesting slower and irregular absorption of the ester. This may account for the variability of excretion but not for its incompleteness, since the urines after small and large doses of the drug were collected until excretion was completed, and the duration of excretion was not influenced greatly by the dosage.

Michigan State Medical Society Journal, Grand Rapids

24: 409-468 (Aug.) 1925

South American Observations. J. T. Case, Battle Creek.—p. 409.
*Endemic Goiter, Precancerous Lesion. F. A. Coller, and H. B. Barker, Ann Arbor.—p. 413.
Pathologic Conditions of Hearing Organ; The Deafmute. E. Amberg, Detroit.—p. 416.
*Duodenal Ulcer. F. L. Snyder, Ann Arbor.—p. 419.
Untrained Diabetic and the Family Doctor. D. H. Duffie, Central Lake.—p. 421.
Primary Liver Abscess with Congenital Absence of Gallbladder and Diabetes. F. C. Warnshuis, Grand Rapids.—p. 423.
"Those Good Old Times," as Seen by a Physician. J. G. R. Manwaring, Flint.—p. 425.

Endemic Goiter and Cancer.—Coller and Barker point out that malignancy of the thyroid is much more common in endemic goiter districts than is generally supposed. Adenomatous goiter is said to be the precancerous lesion of the thyroid. Because of the difficulties of early diagnosis of thyroid cancer and the slight chance of cure when the clinical diagnosis is made, adenomatous goiter should be removed when diagnosed after the age of 25.

Duodenal Ulcer.—Fifty cases of chronic duodenal ulcer have been investigated by Snyder in an effort to analyze the symptoms and clinical findings and to determine the frequency of their occurrence. The diagnosis was confirmed at operation in each case. Pain in the epigastrium, almost invariably indicated by the patient's finger placed on the epigastrium, was the outstanding complaint in forty-two cases. In five cases the pain had occurred in the right upper quadrant, in one case it had been entirely confined to the region of the sternum, and in another it had been described as general throughout the abdomen. Vomiting as an immediate complaint was mentioned by 25 per cent. of the patients. Other less frequent complaints were flatulence, dyspepsia and acid eructations; these were outstanding in 20 per cent. In one case with a recent subacute perforation of an ulcer, there had been repeated convulsions, and in another a grave toxic psychosis had developed. Fitting into the classical picture 70 per cent. stated that their pain came from two to four hours after meals; rarely it was described as a hunger pain alone. In 10 per cent. the pain had been either constant or entirely without relation to meals, and in 20 per cent. it had come within fifteen or thirty minutes after meals. Taking sodium bicarbonate had either completely relieved the pain or lessened the discomfort in 75 per cent. but in the remaining 25 per cent. it had had no effect. The ingestion of food had brought relief in more than 50 per cent., while pressure on the epigastrium and induced vomiting relieved the pain in but an occasional case. Vomiting had occurred in 64 per cent. of the cases at some time during the course of the disease. Hematemesis was noted in 33 per cent. and melena in a slightly lesser number of cases. Tenderness in the epigastrium was present in all but three cases. Muscle spasm was noted in slightly more than one half the series, and a mass was palpable in two cases. In four cases there was visible peristalsis and in one case a dilated stomach was described.

Minnesota Medicine, Minneapolis

8: 489-560 (Aug.) 1925

Psychology of Compensation Neurosis. A. Sweeney, St. Paul.—p. 489.
Public Health—A Challenge to Medical Profession. O. E. Locken, Crookston.—p. 492.
*Colonic Function. E L. Gardner, Minneapolis—p. 498.
Effect of Environment on Upper Respiratory Tract. H. I. Lillie, Rochester.—p. 512.
*Postoperative Pulmonary Complications P. G. Boman, Duluth—p. 517
*Dry Labor. L. M. Randall, Rochester.—p. 525
Apparatus for Transference of Patients. P. N. Jepson, Rochester.—p. 527.

Dietary Fads.—Gardner is of the opinion that much of the publicity given to certain dietary fads and to encouraging the use of bran and other coarse foods is distinctly harmful to the public and is causing a great deal of semi-invalidism.

Postoperative Pulmonary Complications.—Boman directs attention to the high percentage of postoperative pulmonary complications and emphasizes the importance which pulmonary embolism and infarction play as the real etiologic factors in postoperative pulmonary complications, and that other factors, formerly considered of prime importance, such as anesthesia, infection, preexisting lung disease, old age, debility and chilling of the body, are of a secondary nature.

Dry Labor.—According to Randall premature or early rupture of the bag of waters occurs in about 12.5 per cent. of labors. The average length of labor is not increased because of this complication in itself. The employment of morphin and 2 c.c. of 25 per cent. solution of magnesium sulphate, injected well into the muscle, is of material assistance both in making the patient comfortable and facilitating the relaxation of the cervix. Colonic oil and ether analgesia may also be of value in this connection. Occiput posterior should be watched, since many long dry labors are no doubt due to the failure to recognize this condition.

Missouri State Medical Association Journal, St. Louis

22: 293-344 (Aug.) 1925

*Mastoiditis Cause of Gastro-Intestinal Disturbances in Infants. H. W. Lyman, St. Louis.—p. 293.
Nontuberculous Hip of Early Life. I. Infancy. J. A. Key, St. Louis.—p. 295.
*Pelvic Changes of Quadrupedal Mammals on Assuming Erect Postures. F. Hinchey, St. Louis.—p. 298.
Gynecologic Backache. E. Lissack, Concordia.—p. 303.
Nutrition Problem with Special Reference to Negro Children. M. R. Baynham and B. K. Whipple, Columbia—p. 305.
Hospitals, Clinics and the Medical Profession. E. Schisler, St. Louis.—p. 310.
*Gigantic Hydronephrosis with Hydro-Ureters, Congenital. E. H. Kessler, St. Louis.—p. 314.

Mastoiditis Cause of Gastro-Intestinal Disturbances.—Lyman cites four cases showing that a close relationship exists in infants between a middle ear infection and disturbances of the gastro-intestinal tract. This type of case is characterized by vomiting, diarrhea, and loss of weight. There is present an inflammatory condition of the middle ear and a temperature ranging from 38 to 40 C. The most painstaking regulation of feeding fails to control the gastro-intestinal symptoms unless the infection in the ear is recognized and relieved.

Pelvic Changes Due to Posture.—Research leads Hinchey to conclude that the upright posture has developed a form of locomotion in man differing greatly from that of other mammals, in that the quadrupedal type depends on a thrusting force proceeding from the posterior limbs, while in man locomotion is effected by balancing the body on the heads of the femurs while endeavoring to broaden the base of support to accommodate the changing center of gravity. This demand for a broad base of support has produced the greater width of thorax and pelvis, which expansion has effected an increase, in the size of the femur neck. Increase in width of the pelvis has been possible by separation of the symphysis of the quadrupedal pelvis, because of the lessened function of the muscles attached to the symphysis demanding a smaller bony attachment and less powerful fixation. All the changes of the pelvis of quadrupeds, where it differs from the pelvis of man, may, perhaps, be regarded as having been demanded by gravity and a new mode of locomotion.

Gigantic Hydronephrosis in Child.—Kessler's patient was 10 years of age. His trouble was of five years' duration but a correct diagnosis was made only after a pyelogram had been made. The boy died from pneumonia while under treatment. A necropsy was made. The ureters originated at the normal location, but they were about 1¼ inches in diameter and the walls approximated those of the bladder in thickness. There was a short constriction near one kidney which measured one-half inch. Both ureters dilated to a funnel shape forming a large kidney pelvis. The kidney substance was about normal in amount for the age of the patient and fetal lobulation persisted. Kidney section showed fibro-adenoma.

New York State Journal of Medicine, New York

25: 855 888 (Aug.) 1925

Primary Carcinoma of Cervix Uteri Treated with Radium. L. K. P. Farrar, New York—p. 855.
Specialist and General Practitioner. M. Nicoll, Jr., Albany—p. 859.
Medical Reserve Corps C R. Reynolds, Carlisle Barracks, Pa.—p. 864.

Radiology, St. Paul

5: 93-182 (Aug) 1925

Radiologic Study of Gallbladder. J. C. Friedman, A. A. Strauss and R. A. Arens, Chicago—p. 93
Roentgenologic Diagnosis of Disease of Gallbladder. R. D. Carman, Rochester, Minn.—p. 101.
Tetrabromphenolphthalein Injection as an Office Procedure. C. D. Enfield, Louisville—p. 104.
Differential Diagnosis of Gallstones and Kidney Stones. B. H. Nichols, Cleveland.—p. 107.
Analysis of Bone and Joint Lesions of Known Syphilitic Origin. W. C. Campbell, Memphis, Tenn.—p. 122.
Multiple Myeloma. H. W. Meyerding, Rochester, Minn.—p. 132.
Radioactive Substances and Their Therapeutic Uses and Applications. J. Muir, New York.—p. 147.
Chronic Appendicitis: Bases for Varied Clinical Manifestations. M. L. Bierman, Washington, D. C.—p. 152.
Diaphragmatic Hernia. C. Ford, Chicago.—p. 158.

Isolated Disease of Tarsal Scaphoid (Koehler's Disease): End Results in Treated and Untreated Cases. F. E. Diemer and F. E. Butler, Portland, Ore.—p. 159.
Needle Perforating Duodenum. R. B. Bettman and S. R. Bloom, Chicago.—p. 161.
Gigantic Hydronephrosis with Hydro-Ureters, Congenital. E. H. Kessler, St. Louis.—p. 163.
Case of Congenital Absence of Esophagus. E. B. Knerr, Kansas City, Mo.—p. 165.
Anesthesia Light for Fluoroscopic Room. A. H. Stall, Akron, Ohio.—p. 166.
Case of Infectious Arthritis. N. J. Nessa, Sioux Falls, S. D.—p. 167.
Safeguarding Patient and Technician from Infection in Radiodontia. B. S. Gardner, Rochester, Minn.—p. 169.

Texas State Journal of Medicine, Fort Worth

21: 217-272 (Aug.) 1925

Endoscopic Experiences. C. P. Schenck, Fort Worth.—p. 227.
Septic Phlebitis or Lateral Sinus Thrombosis; Otic Origin; Cases. W. D. Jones, Dallas.—p. 231.
Differential Abdominal Diagnosis. A. L. Blesh, Oklahoma City.—p. 236.
Colostomy for Repair of Hernia Complicating Permanent Colostomies. F. L. Barnes, Houston.—p. 240.
Value of Blood Pressure Determinations in Major Surgery. R. S. Adams, San Antonio.—p. 241.
Fractures About Elbow Joint. B. L. Schoolfield, Dallas.—p. 244.
Conservatism in Obstetrics. G. B. Foscue, Waco.—p. 247.
Use of Glucose and Insulin in Treatment of Obstetric and Postoperative Acidosis. Q. B. Lee, Wichita Falls.—p. 250.
Mechanical Support of Uterus. M. S. Seely, Dallas.—p. 252.
Primary Pigmented Tumors of Lung. W. W. Waite, El Paso.—p. 255.
Symptoms and Differential Diagnosis of Thymus Hyperplasia in Infancy. S. R. Kaliski, San Antonio.—p. 258.
Significance of Pus in Urine. J. L. White, Houston.—p. 260.

United States Naval Medical Bulletin, Washington, D. C.

23: 89-185 (Aug.) 1925

Treatment of Acute Lobar Pneumonia. J. E. Miller, San Diego.—p. 89.
Secondary Neurosyphilis in Navy. E. Ehrenfreund.—p. 96.
Sprue; Case. W. A. Hornaday.—p. 106.
•Treatment for Warts of Foot. J. Markey.—p. 111.
Headaches. H. E. List.—p. 114.
Vertigo. G. C. Main.—p. 120.
Death from Chronic Mercury Poisoning Following Antisyphilitic Treatment. C. D. Middlestadt.—p. 125.
Multiple Sclerosis; Case. L. D. Carson.—p. 130.
Acute Intestinal Obstruction Complicating Chronic Pulmonary Tuberculosis; Case. A. L. Aldrich.—p. 137.
Cavernous Sinus Thrombosis Following Submucous Resection; Case. J. L. Emenhiser.—p. 141.
Recent Progress in Treatment of Syphilis. B. C. Shearer.—p. 144.

Treatment for Warts of Foot.—The form of treatment which Markey has found most effective in all cases was modified from that of various authors. It is local only. The foot is thoroughly cleansed with green soap and water. The area of the ball of the foot surrounding the nodosity is painted with collodion (to protect the normal epidermis from the continued action of drugs). The thickened epidermis is cauterized with fuming nitric acid or strong solution of caustic potash. When a hole which approaches the diameter of the callosity has been eaten away to a depth at which the patient first complains of pain, it is filled with a 15 to 20 per cent. salicylic acid ointment. A felt corn plaster of nearly 3 inches diameter, having an aperture of half an inch, is then taped over the treated area. An additional reservoir of ointment is placed in the opening of the plaster if the foot is to receive only one dressing a day. Each morning the entire dressing is removed. The loose detritus and dead tissue are gently scraped away and the ointment is applied as before. The ordinary case will require only six or seven applications of this type, whereas in obstinate cases the treatment may have to be continued for a fortnight or longer. The lesions are prone to recur if treatment is not persisted in until the last vestige of the papilloma is removed.

Virginia Medical Monthly, Richmond

52: 275-336 (Aug.) 1925

Pathology of Cataract. H. S. Hedges, Charlottesville.—p. 275.
Treatment of Cataract. J. A. White, *Richmond*.—p. 277.
Observations of Thyroid Patients. J. M. Emmett, Clifton Forge.—p. 280.
Eugenics or Race Deterioration—Which? W. A. Plecker, Richmond.—p. 282.
Divine Plan of Racial Integrity. W. E. Davis, Staunton.—p. 288.
Eugenics in Relation to Insane, Epileptic, Feebleminded and Race Blending. J. S. Dejarnatte, Staunton.—p. 290.
Diphtheria. W. B. McIlwaine, Petersburg.—p. 293.
Relationship Between Diseases of Biliary Tract and Diabetes Mellitus. L. A. Bigger and H. B. Mulholland, University.—p. 294.
Vascular Syndromes in Extremities. T. M. Foley, Washington, D. C.—p. 297.
Clinical Pseudobulbar Paralysis Due to Intracranial Hemorrhage of New-Born. C. Edmond, Clifton Forge.—p. 300.
Treatment for Narcotic Drug Habituation. W. C. Ashworth, Greensboro, N. C.—p. 303.
Malignancy of Lung from Clinical Standpoint. C. L. Harrell, Norfolk.—p. 304.
•Aspiration of Stearate of Zinc Powder in Infancy. C. B. Conklin, Washington, D. C.—p. 309.
Simple Method for Elevating Depressed Anterior Metatarsal Arch. B. H. Kyle, Lynchburg.—p. 310.
•Bilateral Tubal Pregnancy; Case. W. R. Bracey, Richmond.—p. 311.
•Case of Fusospirillary Infection Which Developed During Active Arsphenamin Treatment. J. A. Hillsman and T. L. Driscoll, Richmond.—p. 312.
Noninfectious Leukocytosis. G. G. Howery, Christiansburg.—p. 313.
Diet During Pregnancy. Modification in Prevention of Toxemia. W. I. Prichard, Petersburg.—p. 315.
Case of Giant Cell Bone Tumor. J. B. H. Waring, Blanchester, Ohio.—p. 318.

Aspiration of Zinc Stearate by Child.—Since the type of container that is usually in use did not figure in the case reported by Conklin, it would seem that the organized effort toward the prevention of these accidents should be directed not only toward the modification of the present typical container but also should be directed against careless handling of the loose substance.

Bilateral Tubal Pregnancy.—The gestations in Bracey's case were of about ten weeks' duration. The symptoms had been present for six weeks before operation. The right side probably was the older in that it was ruptured and twice the size of the left. There was no history of having missed a menstrual period. No embryo was found in the clot in the right tube nor were chorionic villi. The left tube was the size of an egg, the blood clot very firm and organized. This was not ruptured. The clot was removed and was conical in shape. The embryo and chorionic villi were absent in this also, presumably having undergone resorption under pressure of the clot and age of the organization.

Fusospirillary Infection During Arsphenamin Treatment.—Hillsman and Driscoll report a case of Vincent's angina developing the day following the third injection of arsphenamin in as many weeks which they say does not speak well for intravenous medication as a cure for the disease. Local cleansing, followed by application of neo-arsphenamin, did not bring about any change for the better in this case, and, further, brings suspicion on arsphenamin as a cure for Vincent's angina, either locally or intravenously. Rapid improvement of this case coincident with the intravenous use of tartar emetic seems to point to the efficacy of this treatment.

West Virginia Medical Journal, Huntington

21: 393-448 (Aug.) 1925

After the Baby Comes. M. H. Maxwell, Keyser,—p. 413.
Importance of Urologic Examination in Differential Diagnosis of Abdominal Conditions. A. E. Goldstein and T. J. McBee, Baltimore.—p. 417.
Roentgen-Ray as Aid in Diagnosis of Pulmonary Tuberculosis. A. C. Lambert, Charleston.—p. 426.
Our Duty to Public and Mistakes We Can Make. C. A. Ray, Charleston.—p. 431.

Wisconsin Medical Journal, Milwaukee

24: 115-272 (Aug.) 1925

Importance of Early Diagnosis of Esophageal Lesions. J. M. Waugh, Cleveland, Ohio.—p. 115.
•Effect of Tryparsamide on Optic Tract. E. E. Neff, Madison.—p. 120.
Complications of Suppurative Inflammation of Middle Ear. R. C. Smith, Superior.—p. 125.
Conservative Treatment of Chronic Suppurative Otitis Media. J. E. Mulsow, Milwaukee.—p. 130.
Indications for Radical Mastoid Operation. W. E. Grove, Milwaukee.—p. 132.

Effect of Tryparsamide on Eyes.—Neff presents the results *obtained in a series of fifteen cases.* Four patients complained of subjective eye symptoms. Immediately on the development of eye symptoms the treatment was discontinued and was only resumed when these had disappeared, or when ophthalmologic examinations justified continuation. On resumption of treatment there was never a recurrence of visual disturbance.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Surgery, Bristol

8: 1-200 (July) 1925

Charcot's Joints. XVII. D. Power.—p. 1.
*Tumors of Testicle. Teratoid Group. F. G. Bell.—p. 7.
*After-Results of Operations for Malignant Diseases of Breast. A. C. Perry.—p. 39.
Urethral Pouches. G. P. B. Huddy.—p. 50.
Technic of Extrapleural Thoracoplasty. H. M. Davies.—p. 58.
Pyelography in Polycystic Disease of Kidneys. W. M. Carrick.—p. 75.
Etiology and Treatment of Cystitis. H. W. B. Cairns.—p. 78.
Riedel's Chronic Thyroiditis. A. F. B. Shaw and R. P. Smith.—p. 93.
*Aneurysm of Aorta Treated by Wiring. G. H. Colt, C. J. Marshall and C. G. Wakeley.—p. 109.
Extravasation of Bile. Z. Cope.—p. 120.
*Carcinoma of Vermiform Appendix. E. H. Shaw.—p. 130.
Eleven Cases of Vesical Diverticula. R. O. Ward.—p. 144.
Polypi in Bowel Causing Intussusception. W. E. M. Wardill.—p. 158.
*Interscapulothoracic Amputation for Carcinoma of Breast. C. Wallace.—p. 163.
Two Cases of Polypus of Stomach. T. B. Mouat.—p. 165.
Case of Von Recklinghausen's Osteitis Fibrosa. A. R. Short.—p. 170.
Ossifying Chondroma of Rib Mistaken for Sarcoma. C. P. G. Wakeley.—p. 175.
*Renal Colic as Late Complication of Nephrectomy. W. H. B. Cairns.—p. 178.
Cystadenoma of Pancreas: Complete Removal. S. Pringle.—p. 180.
Ectopic Ovary. A. Evans and S. Cade.—p. 182.
Case of Heart (Auricle) Suture. H. Drummond.—p. 184.
Snaring of Caput Ceci and Appendix by an Omental Band. H. M. Rigby.—p. 187.
*Cases of Foreign Bodies in Gastro-Intestinal Tract. W. Adams.—p. 189.
Sarcoma of Renal Pelvis, Associated with Hydronephrosis. F. G. Ralphs.—p. 190.

Tumors of Testis.—Bell holds that the majority of testicular tumors belong to the teratoid category. The relative representation of the various blastodermic derivatives varies greatly in different specimens. Overgrowth of one blastodermic element with partial or total (?) suppression of the others occurs frequently. Hypoblastic overgrowth is most common, mesoblastic next in frequency, and epiblastic least common. Such overgrowth may be simple or malignant, and produces many variations from the typical three-layered teratoma. Teratoma testis is potentially malignant to a high degree.

Results of Operations for Breast Cancer.—Of 653 cases analyzed by Perry, eleven patients died in hospital, thus giving a mortality of 1.7 per cent. Of these, one died from infection, one under the anesthetic, one from heart failure, and the remainder from pulmonary complications and pulmonary embolism. The scirrhus carcinoma group formed 58 per cent. of the whole series. Of these, 37.5 per cent. lived more than three years, with an average of 5.9 years; 10.4 per cent. lived more than seven years, with an average of 8.7 years; carcinoma simplex formed 14.2 per cent. of the whole series, and of these, 32 per cent. lived more than three years, with an average of 7.8 years; 16.2 per cent. lived more than seven years, with an average of 11.2 years; medullary carcinoma formed 8.8 per cent. of the whole series, and of these 38 per cent. lived more than three years, with an average of seven years, and 21 per cent. lived more than seven years, with an average of nine years. There is definite evidence of recurrence after operation in 35 per cent. of the cases examined.

Aneurysm of Aorta Treated by Wiring.—In two of the cases reported by Holt et al. the abdominal aorta was involved. In the third the ascending aorta was the seat of the aneurysm. Although these patients died seven days, twelve days and eight and one-half months, respectively, after operation, postmortem study showed that this method of treatment is well worthy of trial.

Carcinoma of Appendix.—Eleven cases of carcinoma of the vermiform appendix are reported by Shaw. Five patients had reached or passed the age of 50 years. Of the remainder, two were between 30 and 40, two in the twenties, and one patient was only 19 years of age. The youngest of all, a girl of 11, presents two exceptional features—the growth occurred in the body of the appendix and consisted of two nodules. It is worth noting in connection with the last two cases that although carcinoma occurring in young people usually grows rapidly and soon destroys life, these two patients were alive and well two years after the growths were removed.

Amputation in Carcinoma of Breast.—Wallace describes an interscapulothoracic amputation which was performed in two cases of advanced carcinoma of the breast. The shock was no greater than that encountered in other less extensive operations.

Renal Colic Complicating Nephrectomy.—Cairns cites a case which presented the unusual feature of a renal colic occurring eleven years after removal of the corresponding kidney. The cause of this colic and of the other symptoms, which were equally baffling, was discovered by mere chance. At the nephrectomy operation the distal cut end of the dilated ureter was evidently closed by a silk ligature. A slight degree of infection persisted around the fragment of silk, causing from time to time a slight aching pain in the left loin. Twelve years after it had been placed in position the silk worked loose and was expelled down the still patent ureter to the accompaniment of a sharp attack of renal colic. In the bladder it gave rise to a temporary retention of urine, which could easily be relieved by catheter. Finally, the ligature was discharged at the external meatus of the urethra. The patient had no more trouble afterward. The case emphasizes the point that nonabsorbent material should not be used in nephrectomy for ligature of the ureter, particularly when the ureter is dilated.

Intestinal Tract Foreign Body.—In one of the cases reported by Adams a cast of vegetable material simulated carcinoma of the stomach. The second case was one of Richter's hernia-scrotal abscess which contained fruit stones.

British Medical Journal, London

2: 185-240 (Aug. 1) 1925

*Experimental Polyuria. E. Sharpey-Schafer.—p. 185.
*Presence Post-Mortem of Nitric Oxid-Hemoglobin. H. A. L. Banham, J. S. Haldane and T. Savage.—p. 187.
*Filter Passing Viruses and Cancer. W. E. Gye.—p. 189.
Apparatus for Photographing Ultramicroscopic Viruses. J. E. Barnard.—p. 192.
Viruses of Vaccinia and Variola. M. H. Gordon.—p. 192.
Viruses of Common Cold and Herpes. J. E. McCartney.—p. 194.

Experimental Polyuria.—Sharpey-Schafer says that the fact that polyuria is produced by lesions of the base of the brain in the perihypophyseal region, even when the kidneys are completely denervated, is a clear indication that the cause of the polyuria is humoral rather than nervous. This and the fact that it does not make its appearance until the next day or the day after are suggestive of an indirect action through the pituitary rather than of a direct effect from the brain lesion, which, as in the case of Bernard's puncture of the fourth ventricle, would produce its effects immediately.

Nitric Oxid Hemoglobin.—The case reported by Banham, Haldane and Savage was one in which there is every reason for believing that postmortem appearances which simulated very closely those of carbon monoxid poisoning were due to the formation of nitric oxid hemoglobin after death.

Filter Passing Viruses and Cancer.—Gye states that vaccinia and variola viruses are both particulate and largely held up by the Berkefeld filter. Their presence and abundance can be measured, within limits, by the quantitative virulence tests, also by quantitative serologic methods—that is, complement-fixing and agglutination tests—with antivaccinia serum. Active immunity can be produced to vaccinia with either attenuated or killed virus, provided the dose is sufficient. A fair degree of passive immunity is possible. The capacity of vaccinia to excite acute nasal catarrh links up this virus with that of influenza. Flocculi deposited from suspensions of vaccinia or variola virus by specific agglutination are composed, under dark-background microscope, of spheroidal bodies closely resembling Barnard's found in cancer cultures. Apparently similar bodies, however, have been found in flocculi from precipitin action—that is, in flocculi thrown down from serum of man or of horse when these are brought in contact with homologous antiserum prepared from the rabbit. The resemblance, however, may be only superficial.

Japan Medical World, Tokyo

7: 173-200 (July 15) 1925

*Experimental Study on Hyperfunction of Parathyroid Glands by Transplantation into Homologous Animals. K. Kurokawa.—p. 173.
*Coagulation Time of Circulating Blood During Menstruation Period. T. Hosaka.—p. 179.
Experimental Xerophthalmia. T. Okamoto.—p. 180.

Function of Parathyroid Glands.—Kurokawa transplanted parathyroid glands of rats into the abdominal muscles of normal healthy rats, and kept the animals under observation for ten months. The transplanted parathyroid glands showed histologically perfectly normal pictures and did not cause any reaction in the surrounding tissues. There was no regressive degeneration. Consequently, it was possible to produce hyperfunction of parathyroid glands by transplantation, heretofore regarded as experimentally impossible. The growth of the animal with hyperfunction of the parathyroid was very much disturbed and increase of the body weight was very slow. Some of the animals died from malnutrition. Various viscera showed atrophic changes. But atrophic changes were not seen in the parathyroids, the islands of Langerhans, the cortex of the suprarenals or the pineal body. It is concluded that the changes caused by hyperfunctioning of parathyroids are due to intoxication phenomena by metabolic disturbances. The thyroid has an antagonistic action against hyperfunction of the parathyroids. The hyperfunction of the parathyroids caused marked disturbance of growth of bone. Bones showed atrophy and the epiphyseal line was narrow and irregular. But there was no increase of osteoid tissue or cartilaginous cells as seen in rachitis. Consequently, Kurokawa does not agree with the view that rachitis and osteomalacia are caused by hyperfunction of parathyroid glands.

Coagulation Time of Blood During Menstruation.—Testing the coagulability of the blood in six women during the menstrual period Hosaka found retardation of coagulation time only rarely. This variation he thinks may be due to changes in the internal secretion of ovaries.

Journal of Oriental Medicine, Dairen, South Manchuria

3: 53-64 (May) 1925

*Urease Content of Seed of Cucurbitaceae. S. Imai.—p. 53.
Racial Hygiene, Especially Among Japanese in South Manchuria. K. Nakadate.—p. 57.
Significance of Pigment Cells of Frogs. R. Tsukamoto.—p. 60.
*Insulin Treatment of Exophthalmic Goiter. H. Senga.—p. 62.

Urease in Melons, Beans and Pumpkins.—Imia found urease in the seeds of watermelon, soya beans, pumpkins and various other species of melons.

Insulin Treatment of Exophthalmic Goiter.—Three cases of exophthalmic goiter were treated with insulin by Senga with good results. Remarkable improvement was observed; the basal metabolic rate diminished; the body weight increased and the general nervousness and tremor of the patients subsided. Although the lessening of struma and exophthalmos was but slight, the general feeling of the patient appeared to be much better in every way.

Lancet, London

2: 313-362 (Aug. 15) 1925

Fractures of Pelvis and Lower Extremity. W. I. de C. Wheeler.—p. 313.
Dosage of Ultraviolet Rays in Artificial Sun Treatment. A. Eidinow.—p. 317.
Treatment of Infantile Paralysis. G. M. Levick.—p. 323.
*Rheumatic Infection in Childhood. V. Coates and R. E. Thomas.—p. 326.

Rheumatic Infection in Childhood.—Forty-four cases of rheumatic infection in children have been investigated by Coates and Thomas. The opinions reached are that rheumatic infection in elementary school children is not a poverty disease. It is extremely prevalent among such children. The potency of heredity and low-lying locality is emphasized. Subcutaneous nodules have been demonstrated in thirty-five out of forty-four cases (79.5 per cent.), and are significant of an active rheumatic focus, as shown by their association with symptoms and their absence in three cases of stationary mechanical carditis formerly rheumatic. Thus, their presence not only crystallizes an otherwise nebulous diagnosis, but indicates the necessity of continuation of treatment, particularly in nervous children and in those with unsatisfactory cardiac sounds.

2: 363-414 (Aug. 22) 1925

Fractures of Pelvis and Lower Extremity. W. I. de Courcy Wheeler. II.—p. 363.
Tissue Reactions to Ultraviolet Radiations. P. R. Peacock.—p. 369.
*Spirochetal Jaundice. E. Hindle and H. C. Brown.—p. 372.
*Chaulmoogra Treatment of Leprosy. I. Kerr.—p. 373.
Cystinuria in Children; Two Cases. J. F. H. Stallman.—p. 375.

Spirochetal Jaundice in Great Britain.—Hindle and Brown report two cases of this nature, in one of which they were able to demonstrate the presence of the very characteristic leptospira in the patient's urine. These cases are particularly interesting, inasmuch as they were undoubtedly linked up with a small outbreak in a school at Midlands.

Chaulmoogra Treatment of Leprosy.—Out of 180 patients treated with hydnocarpus ester during 1923 and 1924 at the Leper Hospital at Dichpalli, Hyderabad, Kerr says, 17 per cent. were symptom free; 45 per cent. are very much improved, most of them likely to become symptom-free; 35 per cent. are improved; 3 per cent. are worse or dead. Of infective cases, 63 per cent. have become noninfective.

Medical Journal of Australia, Sydney

2: 63-98 (July 18) 1925

Chronic Appendicitis or What? F. N. G. Starr.—p. 63.
Acute Septic Osteomyelitis. D. E. Robertson.—p. 66.
Causes of Chronic Pain in Back and Buttocks. G. S. Strathy.—p. 68.
Diet and Insulin in Treatment of Diabetes. W. R. Campbell.—p. 74.
Treatment of Acidosis and Coma in Diabetes Mellitus. D. Graham.—p. 78.
Other Complications in Diabetes Mellitus. A. A. Fletcher.—p. 80.
Management of Gastric and Duodenal Ulcers. R. R. Graham.—p. 82.
Transport and Deposition of Calcium Salts in Body. J. C. Watt.—p. 85.
Anesthesia and Anesthetics. V. E. Henderson.—p. 88.

2: 99-126 (July 25) 1925

Endocrinology and Modern Medicine. C. H. Kellaway.—p. 99.
*Method for Determination of Death by Drowning. A. Palmer and W. M. Doherty.—p. 103.
Ideals of Obstetric Work. J. W. D. Hooper.—p. 104.
Diathermy. J. F. Nelly.—p. 105.
Death from Electric Shock. B. J. M. Harrison.—p. 106.
Toxicology of Eucalyptus Oil. J. MacPherson.—p. 108.
Cutaneous Cholesterol Deposits. A. H. Tebbutt and F. S. Hansman.—p. 110.

2: 127-152 (Aug. 1) 1925

Immunity. P. MacCallum.—p. 127.
Fractures of Forearm; Nonoperative Treatment. L. G. Teece.—p. 132.
Treatment of Compound Fractures of Forearm. A. Aspinall.—p. 135.
Urethral Hernia of Bladder. J. W. Dansey.—p. 137.
Rib Implant for Depressed Bridge of Nose.—p. 137.

Increase of Blood Chlorids in Death from Drowning.—Of six cases of drowning in sea water, seen by Palmer and Doherty, five showed a definite increase of chlorids in the blood of the left side ranging from 25 to 23. In the sixth case, it was present in equal amounts on the two sides. It is suggested that a patent foramen ovale was missed at the necropsy.

South African Medical Record, Cape Town

23: 293-325 (July 25) 1925

Bench, Bar and Medicine. J. C. Dove-Wilson.—p. 300.
Focal Infection. R. L. Girdwood.—p. 303.
Fetal Death. R. L. Impey.—p. 309.
Case of Paget's Disease. L. I. Braun.—p. 314.
*Cancer Among Natives of South Africa. N. Macvicar.—p. 315.
Case of Whitman's Astrangalectomy. R. A. Ross.—p. 316.

Cancer Among South African Natives.—Among 10,000 inpatients coming from South African natives, Macvicar found ninety-seven cases of carcinoma, thirty cases of sarcoma, fourteen cases of internal growths—brain, chest, abdomen—of obscure nature but probably malignant. Cancer of the mouth seems to be rather common. Macvicar attributes it to the irritation of the things many native men and women carry in their mouths, especially plugs of coarse tobacco, possibly also to the long wooden pipes they use. Cancer of the liver is common in comparatively young men, and even boys. It seems to be due to schistosome infection. Cancer of the breast is rare. Macvicar is inclined to attribute this immunity to the fact that in their natural state Bantu women do not wear corsets, and rarely do so even when adopting other European clothing. The few who did wear the high ribbed corset of the last generation seem to have suffered commonly as Europeans from cancer.

Annales des Maladies Vénériennes, Paris

20: 401-480 (June) 1925

*The Targowla Test in Syphilis. R. Bernard and G. Ruelle.—p. 401.
*Autovaccination in Gonorrhea. B. Valverde.—p. 427.
Syphilitic Chancre in Supraspinous Fossa. L. Danel.—p. 442.

The Targowla Reaction.—Bernard and Ruelle's tests of the cerebrospinal fluid in 200 cases showed the Targowla paregoric reaction to be dependable in all the different stages of syphilis (errors not over 7 per cent.). The reaction appeared to be more accurate than the Wassermann test in neurosyphilis, with the exception of tabes and general paralysis. The test was negative after specific treatment. As described in The Journal, Feb. 10, 1923, p. 435, Targowla found that camphorated tincture of opium forms a colloidal suspension with cerebrospinal fluid. Precipitation occurs when the fluid is pathologic. He adds to 15 drops of the fluid to be examined, 5 drops of water and 15 drops of the paregoric elixir.

Autovaccination with Culture of Semen in Chronic Gonorrhea.—Twelve personal observations and cases on record have convinced Valverde that autovaccination with a semen culture can be only an adjuvant in treatment of chronic gonorrhea. The autovaccine seemed to exert a greater effect on lesions of the prostate and seminal vesicles than the usual vaccine. The urine cleared up more rapidly, but the general reaction and the irritation of the urethra were more pronounced than with ordinary vaccines.

Archives des Maladies de l'App. Digestif, Paris

15: 409-512 (May) 1925

Growths and Tumors of the Anal Passage. R. Bensaude et al.—p. 409.
*Grave Neurosis of the Solar Plexus. Cornioley.—p. 443.

Acute Neurosis of the Solar Plexus.—In the two cases reported by Cornioley, an exploratory laparotomy on the presumptive diagnosis of perforation of a gastric ulcer revealed the stomach and peritoneum apparently normal. The patients were men, and both had been having vague stomach disturbances for a few months or years. They have had no return of the pains since the exploratory laparotomy. In a third similar case, in a young woman, the attacks of intense pain returned after the exploratory laporatomy, and fatal ileus developed later from adhesions.

Archives des Maladies du Cœur, etc., Paris

18: 353-432 (June) 1925

Physiology of Cardiac Rhythm. H. Vaquez and E. Donzelot.—p. 353.
Apparatus for Stabilization of Electrocardiograph. A. Alvarez Moulia and A. di Lucci.—p. 371.
Arrhythmia in Exophthalmic Goiter. G. Bickel and E. Frommel.—p. 378.

18: 433-496 (July) 1925

Radioscopy in Early Diagnosis of Dilatation of Heart. E. Bordet.—p. 433.
Interposed Tissues in Conduction of Heart Impulse. Géraudel.—p. 445.
Experimental Arrhythmias. G. Bickel and E. Frommel.—p. 451.
*Motor Reflex Sign of Angina Pectoris. Hatzieganu and Telia.—p. 466.

Muscular Contractions in Upper Extremity as Early Symptom of Angina Pectoris.—Reporting five observations, Hatzieganu and Telia call attention to a muscular contraction phenomenon which may appear as the first symptom of angina pectoris. It consists in a motor reflex of the forearm, transient contractions of flexor muscles innervated by certain branches of the median and ulnar nerves. In a case of aortitis with grave angina pectoris and Cheyne-Stokes respiration, the muscular contractions were of clonic form, in the others, of tonic form, lasting from five to ten minutes. The clonic contractions were noted in angina pectoris attended with heart insufficiency, the tonic in cases with rare paroxysms, and without evident signs of heart weakness. In four patients the contractions occurred in the left arm; in one patient in both arms during grave paroxysms and in either arm during a slight attack. Since the sensory fibers from the heart and aorta reach the segments of the spinal cord controlling the arms, irritation of the motor cells of the anterior horns may induce contractions of the arm muscles, especially of the hand, as well as the contractions of the intercostal muscles. Obviously, the contractions in the arm are caused by the same mechanism as the precordial oppression, and they may have the same import from the diagnostic standpoint.

Bulletins de la Société Médicale des Hôpitaux, Paris

49: 1145-1215 (July 24) 1925

Thrombosis in Myeloid Leukemia. C. Aubertin and G. Rimé.—p. 1146.
Subacute Pulmonary Gangrene. H. Bourges—p. 1151.
Gangrene of Both Feet; Recovery Under Elevation of Feet and Serotherapy. Achard and Bloch.—p. 1156.
Pneumothorax Treatment in Lung Gangrene. Ameuille and Teisseire.—p. 1159.
Death Following Injection of Arsenical. D. Paulian.—p. 1164.
Case of Uremic Nephritis. V. Cordier and P. Delore.—p. 1165.
*"Dry" Chlorid Retention. L. Blum and van Caulaert.—p. 1175.
*Stain Function Test of the Liver. Merklen et al.—p. 1180.
Recovery Under Tetanus Antiserum. Maurin.—p. 1185.
Diagnosis of Cervical Ribs. A. Ricaldoni and Pla.—p. 1187.
*Epidemic Encephalitis. Denéchau and Barbary.—p. 1199.
Duodenum Compressed by Mesenteric Artery. Brin and Denéchau.—p. 1202.
Convallamarin in Treatment of the Heart. Laubry and Routier.—p. 1207.
Complications of Insulin Treatment. Achard and Bloch.—p. 1210.

Mechanism of "Dry" Chlorid Retention.—Blum and van Caulaert explain that the primary factor in the retention is an anatomic lesion of the kidneys, inducing impermeability for chlorin. The consequent retention of chlorin impairs the renal functioning still further, a vicious circle enhancing the impermeability. The condition is accompanied by exaggeration of the passage of sodium from the blood into the tissues, where it accumulates. The elimination of sodium with the urine is augmented, since the pathologic kidney is unable to retain it. The blood thus loses its sodium and becomes more concentrated while the tissues become dehydrated. Retention of chlorin is thus the main factor in "dry" retention, while retention of sodium is the main factor in dropsical retention.

Rosenthal's Liver Function Test.—Estimation of the proportion of phenoltetrachlorphthalein left in the blood after a given interval, in fifteen patients, showed that fixation of the dye is less pronounced with cancer than with cirrhosis. In cases with an enlarged liver, retention of the dye suggests cancer rather than hepatitis or cirrhosis. The retention does not correspond to changes of the liver cells, as detected on clinical examination. The fixation of the dye probably occurs in the Kupffer cells, and as cancer usually develops in them, the dye is not retained by the pathologic Kupffer cells. In cirrhosis, the Kupffer cells are comparatively intact, and fixation of the dye occurs. While certain lesions of the parenchyma cells cause retention of bile, the passage of the dye into the biliary tract may proceed unhampered. Thus with Rosenthal's reverse stain method, it is possible to compare the reaction of the organism to its own bile as well as to the dye.

Salicylate Treatment of Epidemic Encephalitis.—The treatment was started by Denéchau and Barbary on the tenth day of the disease in a woman, aged 50. The onset had been stormy, with fever, profound somnolence and mild Kernig sign, but no ocular or muscular symptoms. A 4.7 per cent. solution of glucose was used as a vehicle for sodium salicylate. Two daily injections of 0.5 gm. of sodium salicylate into the median veins and one of 1 gm. intramuscularly were given for twenty-two days. The results were remarkable and prompt. The recovery persists for the two months to date.

Comptes Rendus de la Société de Biologie, Paris

93: 217-300 (July 3) 1925. Partial Index

Mobility of Pelvis Joints in Childbirth. Vallois and Thomas.—p. 221.
Oculocardiac Reflex in Domestic Animals. Arloing et al.—p. 223.
Tubercle Bacilli Cultures on Potato. Arloing and Malartre.—p. 225.
Filtrable Neurotropic Viruses. Salimbeni et al.—p. 227.
*Venous Tension with Varices. Villaret et al.—p. 230.
Pleural Effusion with Pneumothorax. Durand and Charchanski.—p. 231.
Alleged Action of Cadmium on Syphilis not Confirmed. Levaditi et al.—p. 233.
*Test Reaction in Gonorrheal Rheumatism. F. Bezançon et al.—p. 235.
*Action of Bile on Chronaxia. Lyon-Caen—p. 237.
Ion Concentration of Bile and Pancreatic Juice. Carnot and Gruzewska.—p. 240.
*Histamin Test for Gastric Secretion. Carnot and Libert.—p. 242.
*Lesions from Virus of Multiple Sclerosis. I. Minea.—p. 245.
*Epinephrin and Staphylococcus Infection. V. Papilian.—p. 248.
*Antitoxin-Anatoxin in Diphtheria Infection. C. E. Pico.—p. 261.
*Internal Massage of the Heart. Fontes and Thivolle.—p. 267.
*Action of Light on Nitrogen Metabolism. Fontès and Yovanovitch.—p. 269.

*Chloroform in Nervous System. Nicloux and Yovanovitch.—p. 272.
*Survival of Eggs After Irradiation. Ancel and Vintemberger.—p. 281.
Mechanism of Acidosis. Blum and Delaville.—p. 289.
The Blood in Diabetic Acidosis. L. Blum et al.—p. 292.

Diagnostic Value of Venous Tension in Varices.—Villaret and his co-workers measured the venous tension of reclining subjects. The tension was higher in the legs than in the arms in eight healthy persons. The difference appeared still greater in twelve cases of symptomatic varices, with compression of the inferior vena cava, as in pregnancy, fibroma of the uterus, cancer of the liver, or hypertrophic cirrhosis with ascites. In twenty-two cases of essential varices, without compression of the vena cava, the venous tension was below normal. Determination of compression of the vena cava may be important in differential diagnosis. Drugs that act on the veins, such as hamamelis and hydrastis, also organotherapy, favorably modified the venous tension with varices.

Gonococcus Reaction in Differentiation of Gonorrheal Rheumatism.— Bezançon, Weil and Rubinstein used the antigen from an emulsion of at least six strains of the gonococcus. In fourteen subjects with rheumatism of nongonorrheal nature, the reaction was always negative; in twenty-four with gonorrheal rheumatism the reaction was positive in 87.5 per cent. The reaction was unquestionably negative in two patients with meningococcus arthritis. In a woman with inflamed metatarsophalangeal joint of the big toe, the reaction revealed the gonococcal origin of the affection, treated previously for gout. In three men with arthritis the reaction was positive, although the intervals since the gonorrhea had been five, seven and twenty-four years. The urethral discharge, as well as cultivation of the sperm were negative. The results from bacteriotherapy were remarkable in one case of recurring shifting arthritis with large prostate but no urethral discharge for many years.

Effect of Bile on Neuromuscular Excitability.—Experimental findings in frogs and snails proved to Lyon-Caen that the action of bile and biliary salts is similar to that of curare poison. They retard muscle chronaxia, while the nerve chronaxia remains unchanged.

Histamin Test of Gastric Secreting Capacity.—Carnot and Libert point out that the histamin test stimulation of the gastric secretion has the advantage over test meals, that the gastric juice is free from food admixture and there is no fixation of the acid and ferment by ingested protein. They injected subcutaneously 1 c.c. of a 0.1 per cent. solution of histamin and examined the stomach content forty-five minutes afterward. The histamin test, applied in patients with ulcer of the stomach, cholelithiasis, jaundice and cancer, showed that with this method the determination of hyperchlorhydria and hypochlorhydria is easier and more exact than with the usual test-meal methods.

Lesions of Peripheral Nerves from Virus of Multiple Sclerosis.—Minea injected an emulsion of the spinal cord from a multiple sclerosis cadaver in the sciatic nerve of rabbits. The microscopic findings indicated the affinity of the virus for the myelin of the nerve fibers. There were also evidences of a toxic periaxial neuritis. Obviously, the findings were analogous to those in the acute and early stage of multiple sclerosis.

Sympathicotonic Substances Promote Infection.—Dogs were inoculated with staphylococci, with or without preliminary injection of epinephrin. In the animals under the influence of epinephrin, there was swelling the second day, and an abscess the third day. These phenomena were absent in the control dogs. Other series of dogs were injected with atropin. An abscess appeared in three out of six; in the control dogs in one out of six. Evidently the excitation of the sympathetic system from the epinephrin favored the inducing of staphylococcus infection. The action of atropin was less pronounced.

Action of Diphtheria Antitoxin-Anatoxin on Experimental Diphtheria.—Pico's experiments on rabbits and guinea-pigs were made with subcutaneous injections, simultaneously in different regions, of a lethal dose of living diphtheria bacilli, and injection of from 2 to 3 c.c. of antitoxin mixed with anatoxin, 2:1. Most of the animals thus treated survived, while the controls all died. An active immunity was conferred by the antitoxin-anatoxin compound, while no immunity could be obtained with anatoxin alone, nor from mixture with normal serum, free from anatoxin. The induced immunity was effective against a dose of bacilli which otherwise killed the animals within four or five days. The method may be used as a prophylactic measure during an epidemic, since the immunization with it is rapid.

"Endomassage" of the Heart from Intra-Arterial Injection.—Fontès and Thivolle report that exsanguinated dogs were resuscitated by injecting into the central end of the artery (femoral or carotid) an isotonic solution or a mixture of isotonic and isoviscous solutions. The amount of the solution was the same, or larger than the blood withdrawn. The heart beat and respiration reappeared in a few seconds. The primary blood volume was soon regained. The rapid occurrence of heart contraction is ascribed to the stimulation of the aortic valves, transmitted to the myocardium, from the shock induced by the injection. The stimulating action is considered a kind of internal massage of the heart. The method might be applied in acute anemia, using an accessible artery such as the radial.

Rôle of Light in Nitrogen Metabolism.—Fontès and Yovanovitch found that the decrease of total urinary elimination of nitrogen during sleep is less in a light than in a dark room. Evidently the absence of light is chiefly responsible for the diminished nitrogen metabolism in sleep.

The Chloroform Content of the Nervous System in Anesthesia.—Nicloux and Yovanovitch observed that in the beginning of administration of chloroform, before the threshold of anesthesia has been reached, more chloroform is fixed in the brain than in the surface nerves. Gradually the peripheral nerves fix more of the drug; when the anesthesia is complete they contain several times more chloroform than the central nervous system. Under chloroform associated with morphin, the content of chloroform in the nervous system is less. The sympathetic ganglions retain as much chloroform as the vagus, while the brachial and the sciatic retain considerably less.

Survival of Frog's Eggs After Irradiation.—Ancel and Vintemberger's research revealed that the survival of an egg, exposed to a lethal dose of roentgen rays, is prolonged if its development is retarded. The gravity of the lesions depends on the dose of the rays and on the susceptibility of the egg to the irradiation.

Journal d'Urologie, Paris

19: 473-564 (June) 1925

*Diverticula of the Bladder. G. Gayet and J. Cibert.—p. 473.
Pyuria with Prostatic Obstruction. H. Blanc.—p. 506.
Syphilis of the Bladder in a Woman, with Fistula into the Rectum. H. Blanc and M. Negro.—p. 513.
A Pseudocystic Cancer of the Prostate. H. Blanc.—p. 521.
Treatment of Genital Tuberculosis in Men. G. Marion.—p. 524.

Twenty-Two Cases of Diverticula of the Bladder.—Gayet and Cibert found that in seventeen of twenty-two patients the diverticula of the bladder had been induced by urinary obstruction. In five cases the diverticulum was congenital. All the patients were men, aged 33 to 76. The authors reiterate that a diverticulum favors the development of pyuria and calculi, as well as of cancer. The only rational treatment is a timely operation. Six died of those given palliative treatment and the others still have pyuria, while six were completely cured by more radical measures; three died. They reproduce a misleading roentgenogram from a case of multiple false diverticula, the result of long dysuria and straining.

Médecine, Paris

6: 669-744 (June) 1925

Electrotherapy and Radiology in 1924. A. Zimmern.—p. 669.
Ultraviolet Ray Treatment. T. Nogier.—p. 687.
Light in Treatment of Rickets. E. Lesné and L. de Gennes.—p. 690.
*Electricity in Treatment of Constipation. P. Lamarque.—p. 699.
Radiotherapy of Asthma. Raulot-La Pointe.—p. 701.
Radiologic Study of Deglutition. J. P. Busy.—p. 713.
Gymnastics and Plaster Jacket in Scoliosis. C. Roederer.—p. 717.
Aix-les-Bains Courses for Chronic Lumbago and Sciatica. J. Forestier. —p. 723.
Physical Training and Sports. P. Chailley-Bert.—p. 731.

Electrotherapy of Constipation from Atony.—Lamarque has noted that constipation from atony is not only more frequent than the spastic constipation, but occurs in young persons as well as in the elderly. He believes that the electric current may be the best means to stimulate to normal functioning the smooth muscle fibers and the intestinal glands. A rectangular electrode is applied to the lumbar region and an elliptical to the abdomen of the recumbent patient, the pelvis raised a little. A slowly interrupted faradic current is followed by a reversed galvanic current. The first application of fifteen minutes' duration is lengthened daily to a total of forty-five or sixty minutes. The treatment, consisting of one or two exposures a day, is given for three or four weeks. A spontaneous evacuation usually occurs after several sittings; then defecation becomes regular, even after the treatment is discontinued. The application should be given soon after a meal, especially in cases with coexisting atony of the stomach.

Presse Médicale, Paris

33: 1073-1088 (Aug. 12) 1925

*Results of Ovary Grafting. Tuffier and Bour.—p. 1073.
Improved Technic for Roentgen-Ray Study of Vessels. M. de Abreu.—p. 1076.

Pregnancy After Ovary Grafting or Transposition.—Tuffier and Bour analyze the experimental results and fifty cases of ovary grafting performed on women, between 18 and 30. Transposing the ovary into the uterus, with or without the vascular and nerve pedicle, exerted a very favorable action on the general condition of the women. The menses reappeared from three to five months after the operation, and persisted from five to ten years. In some cases menstruation continued without a break. The grafting may be followed by pregnancy, with normal childbirth. The only complication of the operation was mild pain preceding menstruation, noted in 50 per cent. of the cases.

33: 1089-1104 (Aug. 15) 1925

The Lesion of Rheumatic Myocarditis. Letulle and Weil.—p. 1089.
Hair-Ball in the Stomach. Ayres Netto.—p. 1092.
*Thyroid Treatment in Kidney and Heart Disease. A. Ravina.—p. 1093.

Thyroid Treatment in Kidney and Heart Disease.—Ravina concludes from his review of the literature that thyroid extract, at a daily dose of from 0.05 gm. to 1.5 gm., given for several weeks, may give excellent results in nephritis with edema and albuminuria, but without arterial hypertension. Thyroid treatment has proved effectual even in cases rebellious to other measures; also in certain heart affections, and in angina pectoris with low blood pressure.

Revue Française d'Endocrinologie, Paris

3: 145-212 (June) 1925

*The Suprarenals in Exophthalmic Goiter. Chauffard and Girot.—p. 145.
*Myxedema with Ovarian or Testicular Insufficiency. Sergent.—p. 154.
*Threshold of Hormone Saturation. V. Pettinari.—p. 163.
Case of Virilism. C. J. Parhon et al.—p. 172.

The Thyroid and the Suprarenals in Pathogenesis of Toxic Goiter.—Chauffard and Girot describe a case of exophthalmic goiter in a woman, aged 62, with coexisting pigmentation of the Addison type. A modified Ehrmann test (citrated blood from a punctured vein applied to an enucleated frog eye) elicited a positive response, the mydriasis reaction persisting for three minutes. The Goetsch skin reaction was also distinctly positive. In the second of their three cases, with less pronounced pigmentation, the induced mydriasis was manifest within one minute. The authors assert that change of the thyroid with subsequent hyperthyroidism was the first phase of the disease; hyperepinephrinemia, from exaggerated secretion of the suprarenal medulla, the second phase. This may explain the association of sympathicotonia with pigmentation, conforming to Cannon's theory of the synergic action of the suprarenals and the thyroid. Fading of the pigmentation paralleled the general improvement under roentgen-ray treatment.

Deficiency of Genital Glands in the Etiology of Myxedema.—Sergent treated a case of attenuated myxedema in a woman, 48 years old. The first manifestations of the menopause coincided with attacks of psoriasis recurring for five years. Then the psoriasis became complicated with progressive arthritis deformans. Signs of attenuated myxedema appeared in the last year, preceding death from pneumonia. Necropsy revealed considerable atrophy of the thyroid with calcification and sclerous degeneration. In another case, in a man, aged 30, an attenuated myxedema appeared shortly after gunshot destruction of the testes. The cases evidently testify to the connection of myxedema with physiologic or pathologic insufficiency of the genital glands.

The Sexual Hormones in the Grafting of Genital Tissue.—Pettinari believes that negative results of grafts of genital tissue from the other sex, observed in cases with unilateral castration, do not depend on an antagonism between the genital glands. They reveal the defense of the organism against overproduction of sexual hormones, with consecutive disturbance of the endocrine balance. As long as the threshold of hormone saturation is attained, no grafts of testicle or ovary tissue will succeed. The grafting succeeds only when the organism is in a condition of sexual hormone deficiency. The results are then the same with testicle grafts or with ovary, regardless whether the subject is male or female. Therefore an experimental hermaphrodism may be induced after castration or lesions of the genital glands. In old animals, grafting is more likely to succeed, owing to the physiologic decline of the sexual hormones.

Pediatria, Naples

33: 801-860 (Aug. 1) 1925

*Dispensary for Tuberculous Children. R. Mercurio.—p. 801.
*The Diphtheria Anatoxin Reaction. F. Redlich and A. Ronchi.—p. 813.
*Sedimentation Test in Tuberculous Children. F. D'Asaro.—p. 823.
Oriental Sore in a Breast-Fed Infant. R. Pastore.—p. 842.

Dispensary for Tuberculous Children.—Mercurio emphasizes in this report of ten years' work that tuberculin treatment for children has proved its value in his experience. Nearly 4,100 children have frequented the dispensary, and tuberculin treatment was given to 80 per cent. The doses are smaller and the course longer than the usual practice.

The Diphtheria Anatoxin Reaction.—Redlich and Ronchi tested 30 children with diphtheria, 30 with measles, 19 with scarlet fever, 24 with other diseases, and 50 new-born infants and their mothers. The anatoxin reaction seemed to be independent of the Schick reaction. The importance of the former they say, is not so much the discovery of a new reaction as that it stresses the significance of diphtheria allergy from the standpoint of the organism's defensive powers.

Sedimentation Test in Tuberculous Children.—D'Asaro's charts confirm the dependable oversight of the course which can be obtained from the variations in the speed of sedimentation of the erythrocytes under the influence of sanatorium and other treatment.

Policlinico, Rome

32: 969-1003 (July 13) 1925

Present Status of Bismuth Treatment of Syphilis. G. Giorgi.—p. 969.
Fatal Traumatic Abscess in the Brain. N. Sassone.—p. 975.
*Vitamins and Bacterial Growth. F. Tallo.—p. 979.

Influence of Vegetable Vitamins on Growth of Bacteria.—Tallo found that fresh lemon or pea juice or peanut oil materially promoted the growth of cultures of gonococci, meningococci, streptococci and other germs tested. The growth was not only ranker but the fluid kept clear.

32: 1041-1075 (July 27) 1925

Mechanism of Production of Eosinophilia. G. Cioni.—p. 1041.
Ileus from Invagination. P. Costantini.—p. 1046.
Early Radiologic Diagnosis of Pyuria. E. Pazzi.—p. 1053.

32: 1109-1142 (Aug. 10) 1925

*Reflex Connections Between Viscera. S. Solieri.—p. 1109.
Skin Lesions That Favor Localization of Syphilis. O. Cignozzi.—p. 1113.
Gummatous Form of Sporotrichosis. G. Jaja.—p. 1115.
*Elephantiasis from Industrial Accident. G. Muccini.—p. 1117.
Improved Seriograph for Roentgen Work. P. Perona.—p. 1119.

Reflex Correlations of the Viscera in the Right Abdomen.—Solieri was impressed with the reaction on the part of the stomach (pains, pylorospasm, vomiting) in the course of operations on the appendix under intraspinal anesthesia. His experimental and other research has confirmed this "pathologic syntonia of the right abdomen." It explains the cases in which appendectomy has cured completely gastric disturbances from hyperacidity, and even a tendency to peptic ulcers in the stomach or duodenum. He cites cases to confirm the inclusion of the gallbladder in this vagosympathetic reflex arc.

Traumatic Elephantiasis.—Muccini gives an illustration of a case of elephantiasis of the genital organs and legs which developed after an *industrial* accident, a blow in the right inguinal region from falling lumber.

Riforma Medica, Naples

41: 673-696 (July 20) 1925

Culture Mediums for Tubercle Bacillus. A. Tarsitano.—p. 673.
*Remissions in General Paresis. G. Pellacani.—p. 675.
Specific-Nonspecific Treatment of Gonorrhea. G. Delpiano.—p. 681.

Remissions in General Paralysis.—Pellacani cites authorities to show that spontaneous remissions may be anticipated in from 5 to 11 per cent. of the cases, and Tanzi, Lugaro and Petrozzani have published instances of remissions persisting for ten to fourteen years. The remissions from malaria treatment seem to be of the same character as the spontaneous, and the statistics show up to 40 or 50 per cent. of remissions in the early stages. Similar results have also been reported from a combination of tuberculin or sodium nucleinate (for the shock fever effect) with mercury. The remission is merely an attenuation of the syndrome, but this may allow useful resumption of specific treatment.

Archivos Latino-Amer. de Pediatría, Buenos Aires

19: 713-795 (April) 1925

*Pseudoleukemic Anemia. Beretervide and Bianchi.—p. 713.
Acidosis in Children. E. Cienfuegos.—p. 744.
Papilloma of the Larynx. J. J. Leunda.—p. 761.
Heliotherapy in Brazil. Moncorvo Filho.—p. 765.

Pseudoleukemic Anemia in Young Children.—A case is described of the von Jaksch-Luzet anemia in a boy, 3 years and 6 months old, and Beretervide and Bianchi discuss the nature and classification of this disease and of the megaloblastic anemias in general. The prognosis is inevitably fatal; congenital syphilis is found in a large proportion of such cases. The main features are the pernicious reaction in the red blood corpuscles, with an embryonic reaction in the white corpuscles, accompanying the enlargement of the liver and spleen. In the case reported, the reds numbered 2,500,000 and the whites, 10,000. The first symptoms had been noted four months before, and the child died the sixth month.

Gaceta Médica de Mexico, Mexico City

56: 1-164 (May) 1925

*Vaccine Therapy in Prophylaxis of Epidemics. M. S. Iglesias.—p. 1.
*Diagnosis of Trachoma. E. F. Montaño.—p. 8.
Data for the History of Medicine in Mexico. N. León.—p. 12.
Calcium Chlorid. F. Bulman.—p. 31.
System in Physiology. Determinism in Science. E. Ramírez.—p. 44.
Basis for Estimation of Disability in Industrial Accidents. L. S. Viramontes.—p. 51.
Importance of Physical Training for the Development of the Young. A. Vallarino.—p. 65.
Prophylaxis and Treatment of Abortion. I. Espinosa de los Reyes.—p. 69. Reply. Everardo Landa.—p. 78.
Necessity for Cultivating a Critical Spirit. A. Aragón.—p. 85.
Occupational Diseases and Dangers, Especially in Textile Factories. P. Sánchez Pérez.—p. 112. Comment. A. Brioso Vasconcelos and Committee.—p. 106.

Vaccination in Prophylaxis of Epidemics.—Iglesias presents arguments to prove that when a disease has acquired a solid foothold in a place, like smallpox in many localities and like yellow fever in the last century, systematic vaccination throughout the year, to immunize the entire populace, would *certainly stamp out the disease. But when vaccination* is applied sporadically, only when epidemics appear, and only occasionally, the result is entirely ineffective. The system may even be distinctly harmful as it confers a feeling of false security. Vaccination should not be regarded as a prophylactic panacea against epidemic explosions.

Diagnosis of Trachoma.—Montaño emphasizes the clinical characters which render *confusion* liable with *follicular conjunctivitis* and perikeratitis. The history of the case generally reveals whether there has been contagion. The research of Kleczkowski and Karelus has supplied a *basis for the biologic diagnosis*, as the serum of sensitized rabbits hemolyzes completely the blood of a trachoma subject. It does not affect normal blood to the same extent. The rabbit has to be sensitized with the blood from a *healthy* subject. Follicular conjunctivitis attacks principally children and youths in asylums. There is never pannus in the cornea, and the granulations in the tarsal conjunctiva are rare and small, and there are no scars or deformity of the tarsus. These affections also yield readily to treatment. The perikeratoconjunctivitis, described by Carmona, is differentiated by the *whitish line* at the periphery of the cornea or the granulations on the lids, limited to the superior tarsal conjunctiva.

Revista Española de Medicina y Cirugía, Barcelona

8: 375-436 (July) 1925

*Fistulas Between Stomach and Skin. Trías Pujol.—p. 375.
Parkinsonian Syndrome After Epidemic Encephalitis. *Cuatrecasas and de Villalta.*—p. 383.
Cesarean Section with Temporary Exteriorization of the Uterus. L. Bosch Avilés and P. Puig y Roig.—p. 388.
Total Laryngectomy with Base of Flap Above. Ricardo Botey.—p. 397.
Local Immunity. A. Besredka. Comment. J. Salvat Marti.—p. 401.
Muscle Transplants. L. Ribó Rius.—p. 405.

Spontaneous Perforation of the Stomach Through the Skin.—Trías Pujol comments on a case of this kind described by J. J. Gómez a century ago, and reports six cases from his own experience in which a stomach-skin fistula developed in the course of a gastric ulcer. Complications are both local and general, inflammatory processes in and around the fistula, and stagnation of secretions and stomach contents. Metastatic abscesses in the liver or pancreas are common, and the loss of nourishment by the fistula leads to intense thirst, death occurring usually in acidosis. Two of his patients died from the progress of the underlying cancer and a third from shock after a laparotomy, the enormous ulcer involving the liver and the pancreas as well as the stomach so that removal was out of the question. In Gomez' case, in 182[illegible] operation and necropsy were refused, but he persuaded the mayor, the pharmacist and the priest to aid him in exhuming the cadaver in the cause of science.

Revista Médica Latino-Amer., Buenos Aires

10: 885-977 (May) 1925

Bone Tuberculosis. L. A. Tamini.—p. 885.
*Exophthalmic Goiter. E. M. Olivieri.—p. 894.
Technic for *Duodenojejunostomy.* R. E. Donovan.—p. 897.
*Syphilis of the Liver. A. Quijano O.—p. 904.
*Acute Colon Bacillus Mastoiditis. E. Casterán.—p. 910.
Skin Diseases. A. Pasqualis Politi.—p. 913. *Cont'n.*

Treatment of Toxic Goiter.—Olivieri advocates ligati the thyroid arteries or partial resection for most cas exophthalmic goiter requiring intervention. But whe condition is too grave for this, he applies the [illegible] method of injection of 10 c.c. of boiling water in each [illegible] alternately, at weekly intervals. He has applied this [illegible] numbers of cases. In some this alone sufficed for [illegible] cure. In others it improved conditions un[illegible] was possible.

Syphilis of the Liver.—Quijano insists on [illegible]ssity for treatment as for syphilis in all cases of cir[illegible] the liver, as it is impossible to exclude syphilis [illegible] and this alone may cure. *The renal* functioning [illegible]sted, and fluids and salt restricted as indicated. [illegible] described, the ascites, edema, hydrothor [illegible] subj[illegible]somnia and [illegible] digestive *disturbances* subsi [illegible] in a [illegible]urial treat[illegible] [illegible]feci ment with *restriction of* fl [illegible] and [illegible]

Acute Mastoiditis.—The [illegible] ura[illegible]ed after [illegible] m operations on the masto [illegible] pe[illegible]. The [illegible] bacillus was found in [illegible] soon a permanen therapy.

Deutsches Archiv für klinische Medizin, Leipzig

148: 1-128 (July) 1925

*Blood Sugar in Pernicious Anemia. Meulengracht and Iversen.—p. 1.
*Diazo and Urochromogen Reactions in Blood Filtrate. Becher.—p. 10.
Perforated Ulcers. J. P. de Bruine Ploos van Amstel.—p. 19.
*Chromogens in Granular Atrophy of the Kidney. E. Becher.—p. 46.
Microscopic Examination of Capillaries. F. Lange.—p. 58.
Vasoneurotic Skin Changes. R. Mayer-List.—p. 67.
*Uremia and Renal Insufficiency. E. Becher and F. Koch.—p. 78.
*Experimental Studies on Meteorism. R. Schoen.—p. 86.
Blood Pressure in the Elderly. A. Richter.—p. 111.
Auscultation Phenomena in Mitral Stenosis. W. Nonnenbruch.—p. 121.

The Blood Sugar in Pernicious Anemia.—Meulengracht and Iversen found that in pernicious anemia the blood sugar may be increased, but they do not believe that this condition is dependent on the anemia.

The Diazo and the Urochromogen Reaction in Renal Insufficiency.—The filtrate obtained after deproteinizing the blood with trichloracetic acid gives a distinct diazo and a urochromogen reaction in cases of severe renal insufficiency. Becher believes that these reactions are caused by aromatic oxyacids and by oxyproteinic acids.

Chromogens in the Serum and Urine in Renal Insufficiency.—In patients with severe renal insufficiency, urochromogen and other chromogens are found in the serum and in the urine. The appearance of these substances in the blood parallels the retention of indican, phenol, etc. Becher believes that the light color of the urine from these patients is due partly to the retention of chromogens in the blood and in the tissues, and partly to an inability of the kidney to oxidize these propigments to pigments.

The Pathogenic Significance of Retained Substances and True Uremia.—In renal insufficiency a parallelism exists between the retention of phenol bodies (phenol, cresol, diphenols and aromatic oxyacids) and the appearance of true uremic symptoms. Uremia is much less dependent on the retention of protein cleavage products. Since phenol poisoning resembles true uremia, Becher and Koch believe that the phenol derivatives play an important rôle in the pathogenesis of uremia.

Experimental Studies on Meteorism.—Schoen studied resorption and diffusion of various gases in ligated loops of intestine in dogs. Carbon dioxid is resorbed in a few minutes, oxygen considerably slower, and hydrogen and nitrogen not at all in the course of several hours. The resorption is slower in the colon than in the small intestine. The speed of resorption of carbon dioxid is much dependent on the condition of the intestinal wall. Inflammation has no influence; circulatory disturbances have an inhibiting action. If the muscular tonicity is increased by pilocarpin, the speed of resorption is greater. After atropin, which leads to a decrease in the muscular tonicity, the resorption is much slower. Schoen discusses the clinical significance of these experimental findings.

Deutsche medizinische Wochenschrift, Leipzig

51: 1305-1346 (Aug. 7) 1925

Remarks on Gye's Paper on Cancer. F. Blumenthal.—p. 1305.
*Tumors and Bacilli. F. Reichert.—p. 1306.
Autotransfusions Plus Roentgen Ray. Tenckhoff.—p. 1308.
The Unity of Streptococci and Pneumococci. E. Berger and B. Engelmann.—p. 1317.
*The Specific Diagnosis of Echinococcus Infections. G. Deusch.—p. 1319.
Relieving Pain. H. Handovsky and R. Seyderhelm.—p. 1320.
Treatment of Diphtheric Stenosis of the Larynx. J. Kaiser.—p. 1323.
The Drainage of Douglas' Pouch. Regge.—p. 1324.
Heart Sounds in Loud Speakers. L. Jacobsohn.—p. 1324.
Orthopedics. H. Debrunner.—p. 1325.
Care of the Mentally Deficient. Waetzoldt.—p. 1326.

Tumors and Bacilli.—Reichert has made studies with the bacillus P. M. which has been isolated by Blumenthal. Rat tumors which have been produced by the simultaneous injection of this bacillus and kieselguhr were transplanted into other rats. In 40 per cent. of the animals the transplantation was successful. It was found that a second transplantation into the same animal frequently led to the development of the first transplant. Reichert proved anew that these tumors grow rapidly, that they metastasize, and that they grow destructively with infiltration. The bacillus P. M. is identical with Smith's *Bacillus tumefaciens*. Since Blumenthal succeeded in isolating a number of different strains from human malignant tumors, the author queries whether these bacilli are really the etiologic factors or whether a uniform ultravirus which lives in symbiosis with these different bacilli may not be the causative agent.

The Specific Diagnosis of Echinococcus Infection.—Deusch states that the intracutaneous injection of hydatid fluid is the most reliable means in the diagnosis of echinococcus infections, and much more dependable than the complement-fixation reaction. The reaction remains positive, however, for a long time after the surgical removal of the cysts.

Klinische Wochenschrift, Berlin

4: 1577-1624 (Aug. 13) 1925

Manic Depressive Insanity. J. Lange.—p. 1577.
Vegetative Nerve System and the Environment. F. Glaser.—p. 1580.
*The Pyocyaneus Bacteriophage. K. L. Pesch and C. Sonnenschein.—p. 1585.
Comparative Pathology of Vascular Diseases. C. Hirsch.—p. 1586.
*Anemia in Splenectomized Rats. E. Lauda.—p. 1587.
*Extramedullary Tumors. J. Erdélyi.—p. 1591.
The Water Pump for Withdrawing Exudates. J. Flesch.—p. 1593.
*Blood Sugar in Pulmonary Tuberculosis. P. Hecht.—p. 1595.
Paravertebral Anesthesia as a Medical Measure. Freude and Kanellis.—p. 1597.
"Blood Chemistry After Stimulation of the Pneumogastric Nerve." H. Vollmer.—p. 1599.
The Electrocardiogram in the Frog. S. de Boer.—p. 1599.
Shifting of Electrolytes Between Tissues and Blood. Behrendt.—p. 1600.
Percutaneous Electrosmosis or Iontophoresis? H. Rein.—p. 1601.
Dispensaries for Infants. H. Nothmann.—p. 1605.

Studies on Pyocyaneus Bacilli.—Pyocyaneus bacilli grow with spots of a metallic luster. Pesch and Sonnenschein have isolated from sixteen different strains bacilli which do not develop these glossy spots, and which never revert to the original type. This new type of bacilli is identical with *Bacterium fluorescens liquefaciens*. Bacteriophages may be found in either type; but the glossy spots in the cultures are not due to the bacteriophage.

Pernicious Anemia of Rats.—Lauda observed that a large percentage of splenectomized rats developed a severe anemia, which displayed a hematologic picture very much like that of pernicious anemia in man. But megaloblasts were never found, and the granulocytes were increased and many pathologic forms were found. Phagocytosis of erythrocytes in the circulating blood was frequently observed. The Kupffer cells were enlarged and they had phagocyted large numbers of red cells. The liver cells regularly presented fatty degeneration. Lauda showed that splenectomized rats which do not develop this condition will develop the same disease after injection of the liver substance of diseased rats. He believes that the etiology of this disease is an endogenous infection which can work only after the removal of the spleen. Only if very large doses of diseased liver tissue are injected into normal rats is it possible to produce the same disease.

Vertebral Exostoses Coincident with Spinal Tumors Elsewhere than in the Cord.—Erdélyi has observed that extramedullary tumors frequently cause exostoses on vertebrae near the site of the tumor. He believes that they are caused by chronic inflammation and venous stasis in the surroundings of the tumor.

Blood Sugar in Pulmonary Tuberculosis.—Hecht found that the majority of patients with advanced pulmonary tuberculosis have subnormal values of blood sugar.

Medizinische Klinik, Berlin

21: 1181-1218 (Aug. 7) 1925

Bronchial Asthma. F. Klewitz.—p. 1181.
The Elements of Embryology. O. Grosser.—p. 1185.
Burns. K. Schreiner.—p. 1187. Cont'd.
Dercum's Disease. W. Jülich.—p. 1189.
Weakly Children. F. Weiss.—p. 1192.
Non-Specific Tuberculin Reactions. G. Singer.—p. 1195.
Intermittent Pseudoneurasthenia. Klein.—p. 1196. Conc'n.
*Bacillus Coli in Pernicious Anemia. F. Lucksch.—p. 1200.
The Action of Pyridin and Hydrocyanic Acid on the Blood Pigment. R. Zeynek.—p. 1201.
Cesarean Section. F. Eberhart.—p. 1204. Cont'd.
A Survey of Recent Urologic Work. R. Paschkis.—p. 1205.
Mercurochrome in Therapy. von Schnizer.—p. 1207.
Gye's Theory on Cancer. K. Brandenburg.—p. 1216.

The Colon Bacillus in Pernicious Anemia.—Lucksch reports that the majority of *B. coli* strains which were isolated from patients with pernicious anemia had the same morphologic and cultural characteristics as those *B. coli* strains that are immune against the action of the bacteriophage.

Mitteil. a. d. Grenzgeb. der Med. und Chir., Jena

38: 441-566, *1925*

Case of Hypernephroma with Pararenal Hemorrhage. H. Kunz.—p. 441.
*Protein Therapy in Peptic Ulcers. H. Marx.—p. 447.
Phlegmonous Colitis. O. Teutschlaender and B. Valentin.—p. 469.
Two Cases of *Nontuberculous* Spondylitis. E. Lyon.—p. 481.
*Nonprotein Nitrogen in Experimental Tetany. O. W.-Florin.—p. 489.
*Healing of Wounds. L. Schönbauer and *L. R.* Whitaker.—p. 500.
Roentgen Ray Treatment in Postoperative Pneumonia. Kaess.—p. 509.
Cerebral Tumors. L. Schönbauer.—p. 516.
Spastic *Conditions* with Gastric Ulcers. W. Budde.—p. 525.
Pancreas Tissue in the Pylorus. H. Münch.—p. 538.
Pneumothorax Treatment in Acute Empyema. H. Elias.—*p.* 543.
Grevé's Test for Tumors. P. Rostock.—p. 550.
Adhesive Pericarditis. A. Grote.—p. 556.

Nonspecific Protein Therapy in Peptic Ulcers.—Histologic study of the ulcers did not reveal any curative effect from the protein therapy on peptic ulcers. Marx believes that inflammatory reactions are not a factor in the healing of ulcers, and he did not find any conclusive relation between those reactions and the therapeutic attempts. In the majority of cases he found a local eosinophilia, which may be considered as a result of the protein therapy.

The Nonprotein Nitrogen in Tetany.—Florin found after removal of the thyroid and the parathyroids in ten dogs, that the nonprotein nitrogen was always increased, proportionately parallel to the severity of the tetany symptoms. Calcium chlorid relieved the tetanic symptoms and decreased *the nonprotein nitrogen. The urea nitrogen was decreased* in tetany; consequently the increase of the nonprotein nitrogen is due to incompletely oxidized protein cleavage products.

The Influence of the Sympathetic Nervous System on Healing of Wounds.—Schönbauer and Whitaker demonstrated on seventeen dogs that traumatic wounds of the gastric mucous membrane healed more rapidly when sympathectomy was performed simultaneously with the trauma.

Münchener medizinische Wochenschrift, Munich

72: 1319-1366 (Aug. 7) 1925

The Viscosity of the Blood. C. Hirsch.—p. 1319.
The Chemistry of *Pathologic* Conditions. G. Hoppe-Seyler.—p. 1321.
Dermatitis Caused by Adhesive. H. W. Siemens.—p. 1323.
Apparatus Combining Nephelometer and Colorimeter. H. Dold.—p. 1325.
*Postoperative Anuria. T. Brunner.—p. 1326.
The Duodenal Ether Reflex. F. Rabe.—p. 1329.
Anomalies of the Bile Ducts. *M. Budde.—p.* 1330.
Studies in Fränkel's Edema Bacillus. Weigmann.—p. 1332.
Exercise in Respiration. Hörnicke.—p. 1332.
*Impacted Wisdom Teeth. Determann.—p. 1336.
Illuminating Gas Poisoning in Infants. Müller.—p. 1337.
*Ponndorf Vaccination. Langemak.—p. 1338.
Treatment of Gonorrhea. Löwensohn.—p. 1341.
Treatment *of Enuresis.* Ochsenius.—*p. 1342.*
Treatment of Suppurative Processes. M. Bischoff.—p. 1342.
Abortion from a Legal and Social Point of View. Hoeber.—p. 1344.
The Hygienic Exposition at Düsseldorf in 1926. M. Fraenkel.—p. 1349.

Postoperative Anuria.—Brunner advocates the intravenous injection of a 40 per cent. hexamethylentetramin solution (average dose, 5 c.c.) as a successful and harmless treatment in postoperative anuria.

Impacted Wisdom Teeth.—Determann reports a case of severe general nervous disturbances which was apparently caused by a wisdom tooth which was impacted and which exerted continuous pressure upon the inferior alveolar nerve. The extraction of the tooth brought about complete cure.

Ponndorf Vaccination.—In the last four years, Langemak has used the Ponndorf method of tuberculin vaccination in 865 cases, for the treatment of various diseases. He believes that he achieved very good results in tuberculosis of the testes, in erysipelas, in acute rheumatic arthritis and in acute attacks of gout.

72: 1367-1408 (Aug. 14) 1925

Arteriosclerosis. W. Frey.—p. 1367.
*Recurring Appendicitis. Düttmann.—p. 1370.
A "Hemogram Laboratory." G. Ockel.—p. 1372.
*Roentgen-Ray Diagnosis of Chronic Arthritis. Krebs.—p. 1375.
*Fontana's Method for *Staining* Spirochetes. W. Krantz.—p. 1377.
Poisoning with Arsin. H. Gerbis.—p. 1378.
Progress in Epidemiology. F. Wolter.—p. *1380.*
Treatment of Climacteric Disturbances. F. A. Lehmann.—p. 1382.
*Spontaneous Rupture of the Gastro-Epiploic Artery. M. Budde.—p. 1383.
Transmission of Syphilis to *Grandchildren.* Vanselow.—p. 1384.
The Clinical Lecture. T. Rumpf.—p. 1385.
Treatment of Compound Fractures. A. Krecke.—p. *1387.*
The Care of Run-Down Children. O. Schneider.—p. 1389.

Recurring Appendicitis.—After an appendicitic abscess has been incised, a new appendicitic attack occurs frequently. It is therefore necessary not only to incise the abscess but also to remove the appendix. Düttmann advocates as the method of choice the two-stage operation. The second stage should include a laparoplastic operation to prevent or cure a hernia in the operative scar of the first operation.

Chronic Arthritis.—Krebs emphasizes the frequency of chronic inflammation in muscles and tendons surrounding the joints. The differential roentgen-ray diagnosis is thoroughly discussed.

Fontana's Method.—Krantz publishes a modification of Fontana's method for the detection of spirochetes in tissue sections. The sections stained by the new method do not fade in the light.

Spontaneous Rupture of Gastro-Epiploic Artery.—A man, 23 years of age, became suddenly ill with violent pains in the abdomen. He had never been sick before, and had a negative Wassermann. He was operated on the following day; a perforated ulcer or acute fat necrosis of the pancreas was suspected. Budde found that he had a rupture of a branch of the left gastro-epiploic artery. The artery was ligated, and the patient recovered fully. There had been no trauma before the attack of pains.

Zeitschrift für Kinderheilkunde, Berlin

39: 465-644 (July 24) 1925

*The Bordet-Gengou Bacillus in Pertussis. Bachmann and Burghard.—p. 465.
Prognosis of Tuberculosis in Children. E. Nassau and H. Zweig.—p. 484.
Dystrophia in Early Childhood. L. Landé.—p. 495.
*Scarlet Fever, Measles and Chickenpox. Nasso and Laurinsich.—p. 516.
*Scarlet Fever and Vegetative System. Block and Koenigsberger.—p. 536.
Nevi in Univitelline Twins. Bardach.—p. 542. Comment. Siemens.—p. 551.
Contribution to Clinical Hematology in Infants. E. Stransky.—p. 553.
Intolerance for Cow's Milk in Infant with Purpura. Landsberger.—p. 569.
Endocrine Dwarfism. L. A. Kwint.—p. 575.
The Formation of Ammonia in Infants. M. Landsberger.—p. 586.
Excretion of Organic Acids in Infants' Urine. Landsberger.—p. 597.
The Influence of Ions on Diuresis in Infants. E. Freudenberg.—p. 603.
Muscular Hyperirritability in Infants. F. Demuth.—p. 613.
The Nonsaponifying Substances in Cod Liver Oil. Behrendt.—p. 619.
Resorcin in Treatment of Children. O. Connerth.—p. 628.
Medicosocial Studies on Children Fed in Public Kitchens. S. Weissenberg.—p. 634.

The Bordet-Gengou Bacilli and Pertussis.—Bachmann and Burghard found that the *Bordet-Gengou* bacilli produce almost regularly a fatal bacteremia in mice after peritoneal injection. This pathogenicity distinguishes them from influenza bacilli, from which they cannot be differentiated by any cultural or serologic methods. Although their etiologic rôle was not established, these bacilli were found regularly *in pertussis, especially* in the early stage, even before the onset of the typical clinical symptoms. Their virulence for mice paralleled the severity of the case of whooping cough from which they were isolated.

The Etiology of Scarlet Fever, Measles and Chickenpox.—Nasso and Laurinsich (of Naples) have continued and elaborated Di Cristina's studies. They believe that the Di Cristina bodies are the causative organisms for those diseases indicated in the title. All three organisms are culturally, serologically and *biologically* strictly specific. The authors report positive results in the infection of rabbits and in two cases in children, who had been infected with the measles culture.

Scarlet Fever and the Vegetative Nervous System.—Block and Koenigsberger found that children with scarlet fever displayed a vagotonic reaction to epinephrin injection. They conclude that the vagotonic type is predisposed to scarlet fever.

Zentralblatt für Chirurgie, Leipzig

52: 1761-1808 (Aug. 8) 1925

Acute Abdominal Disease. Paul Esau.—p. 1762.
Operation for Arteriovenous Aneurysm. J. Hohlbaum.—p. 1764.
Babcock's Operation on Varicose Veins. Hosemann.—p. 1765.
A Splint for Fractures of the Femur and Leg. R. Demel.—p. 1766.
A Splint for Arm Fractures. B. Chatzkelsohn.—p. 1773.
Roentgenoscopy at the Bedside. M. Sgalitzer.—p. 1778.
Radical Operation for Hemorrhoids. Kinscherf.—p. 1782.

Zentralblatt für Gynäkologie, Leipzig

49: 1793-1840 (Aug. 8) 1925

Industrial Dangers for Pregnant Women. M. Hirsch.—p. 1793.
Central Rupture of the Cervix. B. Ottow.—p. 1803.
Knee Presentation. W. Odenthal.—p. 1814.
*Spasmophilia and Pregnancy. C. Merletti.—p. 1816.
Epilepsy in Women. H. Heberer.—p. 1824.

Spasmophilia and Pregnancy.—Merletti observed in some pregnant women a mechanical and electric hyperirritability, which predisposes to localized and universal spasms. The altered conditions in pregnancy may make this predisposition manifest.

Zentralblatt für innere Medizin, Leipzig

46: 737-768 (Aug. 8) 1925

Brief Spontaneous Variations of the Systolic Blood Pressure. L. Hahn. —p. 738.

Prophylaktitcheskaia Medicina, Charkoff

6: 1-192 (June) 1925. Partial Index

Control of Drinking Water. L. Gorovitz-Vlasova.—p. 1.
*Scarlet Fever Toxin and Dick Test. Rosen and Korobitzina.—p. 9.
Search for Helminth Ova in Stools. G. Vitenberg.—p. 19.
Influence of Mental Work on Weight and Muscular Strength. S. Popoff. —p. 71.

A Scarlet Fever Toxin for the Dick Test.—Rosen and Korobitzina report the results of the Dick test, made with their special toxin in 377 cases, the injections repeated the second or the third day. In many cases the reaction faded on the second day; in 3.7 per cent. it appeared more pronounced on the third day. Sixty children were injected with the Dick toxin and sixty with the authors' toxin. With the Dick toxin a positive reaction occurred in 50 per cent. of the cases; with their toxin in 48 per cent. The test, made in 133 scarlet fever patients, showed a positive reaction in the first days of the disease in 82.5 per cent.; and in 18.2 per cent. of the convalescents. Of 14 persons with a scarlet fever history, the Dick test was positive in only 2, the interval since the scarlet fever twenty and thirty-five years. Of 600 children with a positive or combined Dick reaction, 4 developed scarlet fever, but none of the 600 children with a negative reaction. Positive reactions in scarlet fever patients decreased proportional to the day of the disease. Their results with the Dick test, compared with those of Zingher, indicated a smaller number of positive reactions in the first days of the disease, and a greater in convalescents. The rate of positive reactions in the healthy was higher than that given by Zingher. Their findings confirmed also the connection between the age of the subjects and the number of positive reactions. The authors assert that the action of their toxin seems to be identical with that of the Dick toxin, but the nonspecific irritation with it is more marked. They describe the method of preparation.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

2: 213-324 (July 11) 1925

*Valvular Heart Disease in the East Indies. A. E. Sitsen.—p. 222.
*Vital Staining of the Eyes. E. Marx.—p. 234.
Structure of the Living Cell. F. de Moulin.—p. 241.
Comparison of Malaria Death Rate in Italy and the Netherlands. N. H. Swellengrebel.—p. 247.
An Accessory Tube in Case of Tubal Pregnancy. F. C. van Tongeren. —p. 257.

Valvular Disease in East Indies.—Sitsen analyzes nineteen cases of endocarditis (in 2,810 necropsies), and comments on the rarity of syphilitic aortitis in the natives of the Dutch East Indies in comparison to Europeans. He suggests that, if functional strain is an important factor, the lower blood pressure of the natives may explain the rarity of this localization of syphilis. Articular rheumatism is rare in the Indies.

Vital Staining of the Eye.—Marx concludes his experiments and clinical study of this subject with the suggestion that it might be possible to enhance the action of actinic rays on the eye by vital staining. The halogen derivatives of fluorescein (bengal red) are said to render the tissues more susceptible to radiant energy, and this might be utilized in treatment of rebellious phlyctenas. The stain seems to affect electively the special points where phlyctenas develop.

2: 325-443 (July 18) 1925

*The Mind in Aphasia. D. Wiersma.—p. 326.
Influence of Purity of Insulin on Its Action. S. E. de Jongh and E. Laqueur.—p. 330.
*Scoliosis in Young Children. R. J. Harrenstein.—p. 339.
Advantages of U Tube for Typhoid Cultures. H. J. M. Plantenga.—p. 347.
Radiography of the Lacrimal Passages with Iodized Oil. J. van der Hoeve and J. D. Steenhuis.—p. 349.
A Fatal Menstrual Hemorrhage at Age of 16. D. van Vugt.—p. 352.
A Primary Sarcoma of the Knee. C. van Luijt.—p. 356.

Psychologic Elements in General Paresis and Motor Aphasia.—Wiersma presents evidence to confirm the influence of emotional conditions on ataxic aphasia. This indicates the necessity for psychologic treatment, and he declares that this applies also to general paresis. During exacerbations of the latter, association tests reveal that the disease process in the mind as well as in the body is being aggravated.

Necessity for Early Detection and Correction of Rachitic Curvature of the Spine.—Harrenstein protests against the current opinion that the young child will outgrow the slight scoliosis. It is an easy matter to correct it in its incipiency by having the child lie in a plaster bed which exerts pressure on the protruding portion of the ribs. This protrusion of the ribs on one side is the sign of danger. Without it, expectant treatment may be justified. The plaster bed treatment is accepted by the parents and is properly applied much more easily when the child is still in arms. When it is old enough to run around, the correction is more difficult for a number of reasons. He alternates the reclining in the plaster bed with prone reclining, the child's arms fastened so it can raise only its head. This exercises the muscles. In six cases systematically treated, three have been entirely cured, and in three roentgenoscopy alone reveals a slight persistence of the scoliosis. Nine other children are still under treatment or the parents have abandoned it, but the results already obtained confirm the wisdom of the procedure. This is especially emphasized by the progressively grave condition of certain other children whose parents could not be persuaded of the necessity for systematic treatment.

Hospitalstidende, Copenhagen

68: 529-552 (June 11) 1925

*Pneumococcus Infection of the Eye. Lundsgaard.—p. 529. Conc'n. p. 553.
*Hemolytic Jaundice with Striatal Symptoms. Munch-Petersen.—p. 546.

Pneumococcus Infection of the Eye.—Lundsgaard's research revealed pneumococci in 5 per cent. of normal eyes at all ages, with 11 per cent. in the elderly. This is important in prophylaxis, especially as vaccine and serotherapy have proved disappointing. The main reliance is on ethylhydrocuprein in ulcus serpens and to ward off postoperative infection, but it is a dangerous weapon, he says. It is valuable for superficial ulcus serpens but not for the deep. He paints the ulcer cautiously with a 2 per cent. solution about three times a day. With beginning infiltration, he increases the strength to 5 per cent. but warns that this may entail iritis if kept up too long. With established postoperative infection, the drug is of no use, and it is not needed for acute conjunctivitis.

Case of Hemolytic Jaundice with Striatal Symptoms.—A sister had hemolytic jaundice which had been apparently cured by splenectomy, but removal of the much enlarged spleen did not seem to benefit the hemolytic jaundice or the attacks of striatal symptoms in Petersen's patient. The young woman had been healthy until the age of 18. The thyroid was enlarged but there were no symptoms—apart from the hemolysis—indicating malfunction of the liver, as in Wilson's disease. The correlation in this case may have been between the spleen and the corpus striatum.